J. McFADYEAN

D.R.17.

DEPARTMENTAL COMMITTEE ON THE PUBLIC VETERINARY SERVICES.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

DEPARTMENTAL COMMITTEE

APPOINTED BY THE

PRESIDENT OF THE BOARD OF AGRICULTURE AND FISHERIES

TO INQUIRE INTO THE

REQUIREMENTS OF THE PUBLIC SERVICES WITH REGARD TO OFFICERS POSSESSING VETERINARY QUALIFICATIONS;

WITH APPENDICES AND INDEX.

Presented to Parliament by Command of His Majesty.

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MINUTES OF EVIDENCE

TAKEN BEFORE

THE DEPARTMENTAL COMMITTEE

ON THE

PUBLIC VETERINARY SERVICES.

At Winchester House, 21, St. James's Square, S.W

FIRST DAY.

Friday, 18th October 1912.

PRESENT:

SIR ALFRED HOPKINSON, K.C. (*Chairman*).

Sir THOMAS H. ELLIOTT, K.C.B.,
Sir THOMAS W. HOLDERNESS, K.C.S.I.
Mr. H. J. READ, C.M.G.
Major G. F. MACMUNN, D.S.O.
Mr. H. L. FRENCH (*Secretary*).

Colonel F. RAYMOND, F.R.C.V.S., C.S.I., I.C.V.D., called and examined.

1. (*Chairman.*) I think you have been appointed by the India Office to appear here to-day and give evidence?—Yes, I was requested to appear.

2. In order to have it on the note, would you just tell us your experience in India and the official position you held there?—I joined the Civil Veterinary Department in Bengal in 1896, having then had 18 year's service in the Army, so that I knew a fair amount about veterinary matters. I then acted as Superintendent of the province of Bengal, and at the same time as Principal of the Bengal Veterinary College. After a time the work became too considerable for me to carry on alone, and a young officer was sent out to assist me. He worked under me for some time and then he was detached as Superintendent, and I remained as Principal. While I was Principal I started a Research Laboratory. I was head of the Calcutta glanders department, and endeavoured to act as a sort of veterinary officer of health for the city of Calcutta. I also did other things, investigations and so on. So that my experience is—I have been in the Army, I have been Superintendent of a Province, a Principal, a Lecturer, and a director of a Research Laboratory.

3. How long is it since you held the position of Principal of the Bengal Veterinary College?—Only six months ago.

4. What is the total number of Veterinary Colleges in India?—There is one in Calcutta, one in Madras, one in Bombay, and one in Lahore.

5. Are the students in those colleges entirely native?—So far as my college, Calcutta, was concerned, they were entirely native.

6. What staff had you there?—An Englishman as Assistant Principal—that is to say, he was born in England, but he had been all his life in India. He was not a qualified veterinary surgeon according to English law, but he was a graduate of the Bombay Veterinary College, and a good man; and then I had five native lecturers whom I had trained.

7. Did those natives go into what we should call private practice here or into State service?—Practically all the graduates are in State service—the best men were all Provincial service men.

8. Were they eligible for the higher State appointments in the veterinary service? — No, they were neither eligible nor qualified.

9. They went through, I suppose, a course of training and got a certificate afterwards?—Yes, they went through a very good course—a three years' course—and they were not at all bad practitioners in their way. They were not nearly so good as English veterinary surgeons, but they had a very good knowledge of diagnosing the ordinary diseases of Bengal, and were good surgical operators.

10. Had you any opportunity of seeing anything of the men who came out from England to do veterinary work?—Yes.

11. Do you know if there is any difficulty in finding suitable men for veterinary positions in India?—Are you referring to Europeans?

12. Yes?—I have heard about it, but I do not know of my own knowledge.

13. (*Sir Thomas Elliott.*) It might be convenient, Colonel Raymond, if you would tell us something about the general scope of the duties of the Indian Civil Veterinary Department?—To take the superintendent, first of all, he is a veterinary surgeon; that is to say, he may have work as a veterinary surgeon when necessary, but he inspects veterinary dispensaries, supervises the work of the native veterinary assistants; he is mainly a sort of veterinary officer of health; that is to say, he deals with infectious diseases. It is a most important part of his duties as superintendent to deal with infectious disease on a large scale. He also has something to do with cattle breeding and mule and donkey breeding, and he may be called upon to do other work—anything that turns up. For instance, when I was the Principal of the Veterinary College my natives under me examined the hackney carriage horses for the Calcutta Corporation, and, owing to the sudden death of the superintendent of the vaccination establishment in Calcutta, I trained rapidly one of my graduates, who happened to be a glanders inspector, and put him into the appointment. Really the things that the veterinary officer *can* do in India, or may be called upon to attend to, are very numerous.

14. We have a memorandum here as to the staff of the Indian Civil Veterinary Department, and I see that there are 32 members of that department altogether. Would those 32 be Englishmen?—Yes.

15. How many natives would there be in addition?—Many more, but they are of a different class altogether.

16. In India do you attempt to suppress infectious diseases?—Oh, yes.

17. I suppose some infectious diseases are very prevalent in India?—They all are, and I think others will be discovered in course of time. It only requires more time to investigate, and I should think they would probably discover more diseases.

18. Has any success been attained in suppressing any of these infectious diseases, such as we have had in our own country, for instance?—For instance, which?

19. Let me take foot-and-mouth disease, which is one I have very much in my mind at the present moment?—Foot-and-mouth disease in India is such a very mild thing that merely advice is given to the natives—which they do not carry out as a rule. The disease, however, is so mild that it is not worth risking the upsetting of the native equanimity in order to stop it. Foot-and-mouth disease in India is like a mild cold in the head amongst us here in England. The only thing is that if they mismanage the animals grossly the feet may go wrong, and they may get ulcers, or that sort of thing, in their feet, and the animals may starve, partly owing to insufficient food, and partly because they cannot collect the food; but in the case of any decently managed animal that has foot-and-mouth disease, it is nothing—it is, as I say, just as if we ourselves had a cold in the head here, and disease is not so infectious, in my opinion, in India, as in England, because the sun is such a splendid steriliser. Probably, also, the animals are less susceptible in India.

20. What are the more serious infectious diseases of animals in India?—Hæmorrhagic septicæmia and cattle plague.

21. How is the staff divided as between the Provinces? It occurs to me that the number is very small indeed to cover India?—Do you refer to Europeans?

22. Yes?—It is too small, of course.

23. I suppose you would say there is plenty of room for veterinary work which is not done yet?—Yes. Of course the thing has only been recently started. You have to make your native assistants as you go along, and if you do not mind my mentioning it, you must remember a good many of these men in the making may be alright until they get their diplomas, and then a certain number of them fail—men who show a lack of common sense, or who turn out bad characters or lazy, or something of that kind. Those failures form a distinct percentage; and then there is a number that die, because their duties take them into unhealthy places, and they catch malaria and fevers.

24. Are you speaking now of the native staff?—Yes; the European staff is small.

25. Does the European staff do anything in the way of research work?—No. Of the staff in general I should think not.

26. Members of the European staff?—No, I should think they do none—with a few exceptions. By research work I presume you mean something serious in the matter of research.

27. I mean in the way of obtaining scientific knowledge?—Research work is a very wide definition, but if you mean to carry out serious investigations—to find out the cause of disease in a scientific manner—I should think very few of them do.

28. Is that because no opportunities are given for research, or because they are men whose qualifications are mainly of an administrative and executive character?—I should think myself perhaps, because their qualifications are not sufficient, and because they have not got time for it, and then most of these superintendents have not got the facilities or the apparatus. You see research work is a line in itself.

29. What has been the education and training of the men you have had under you in India—I am speaking now of Europeans?—The men I have had under me have been intended to become superintendents. May I say this: It is well to remember that in India a man may be a superintendent, or he may be a lecturer, or he may be a principal, or he may be a cattle-breeder, and they are different things. Most of the men who came to me, came to be trained as superintendents, and they had six months' practical instruction in local diseases, office work and administration. I found them very good young men; they were intelligent and well-behaved and gentlemanly, and very enthusiastic and zealous officers. They are young men who certainly would have done extremely well in ordinary private practice in England—they were quite good young men; very good material.

30. Would any of those be actually engaged on research work on the lines that you have indicated?—There was only one who came out to me—a very good young man—who, I believe, had an idea that he was to carry out work in my laboratory, and I dare say in time, if he had had more experience, he might have done some good. But, as it happened, he hardly knew the A.B.C. of the thing. And yet that young man as a superintendent, or even as an ordinary lecturer, would have been quite a success with Bengalis. I should think he would have been a success because of his marvellous patience: but in my laboratory he did not know enough to be of much use.

31. I rather gather that in addition to the training these young men have had here, and which it was necessary they should have in order to get their diploma, you have had to do very much of their training yourself?—My training, of course, occurred 40 years ago.

32. I am speaking of the European staff. Perhaps I may repeat my question. Do I understand rightly that apart from the training which these young men who come out to you have had at the college here which was necessary in order to enable them to get their diploma, you have had, as it were, to train them yourself for the particular work they had to do out in India?—Oh yes, because it is rather different there. The diseases are different, the appearances of the diseases are not always the same, and then there is administration and the way of dealing with natives, and a good many other things.

33. As regards laboratory work, did they come out to you with a full knowledge of the methods of laboratory research and the principles on which they should proceed?—No. They go through a post-graduate course at the Royal Veterinary College, which lasts two months, and it is really a most excellent course. I have been through it myself, and I once acted as a sort of assistant lecturer to Sir John McFadyean, and I know it is a most excellent course; but it is only the beginning of things. That course does not fit a young man to be superintendent of a laboratory, and I do not think that it really fits him to grasp many of the problems connected with the treatment of infectious diseases which will arise, if not now, in the near future. These questions are cropping up, and I do not think the young officer, who takes this two months post-graduate course and then goes out to India, knows enough to be able to tackle these questions—certainly not as a laboratory man.

34. You would then rather welcome any recommendations that we might be able to make which would provide for the better and more scientific training of the men who come out to you?—The more extended training?

35. Yes.—Yes, I think it would be a benefit, particularly for laboratory men.

36. (*Chairman.*) What in your opinion is the amount of additional training they require beyond what they have had after say those two months post-graduate work, in order to fit them for the sort of work in research that is contemplated?—The subject requires to be thought out; but I should think something like this: I think the first thing for a graduate to do would be to go through the McFadyean course. That is now always done. Then, I should like him to go through the D.V.H. course at one of the Universities—the Diploma of Veterinary Health.

37. Or the diploma of Veterinary State Medicine?—Yes, something on those lines.

38. That is a course of from six months to a year, is it not?—Yes. Then I should like them to go out to India, and perhaps they might be divided into two branches, those who are going to be research officers and lecturers, and those who are going to be superintendents. I think they all might go through a training of six months, or whatever it may be, in the district to which they are sent to learn administration, and that sort of thing. Then I should like them to go round to Muktesar for a time, then to the Pasteur Institute at Kasauli for a short time, or some other Pasteur Institute, and then to spend a month or more with a medical officer of health in Bombay, Calcutta or Madras, or somewhere where investigations and food analyses are done. The fact of the matter is that research work is somewhat different in India from what it is here. There are certain technical things which the climate renders different. Bacteriology, for example, is more difficult to work at in India than here on account of the tremendous flora, particularly during the rains. All your tubes get infested and that sort of thing. There are certain knacks of manipulation which they would learn best in India. Then they might be appointed to a veterinary research laboratory, and at an early portion of their career they might be sent home again to carry out further study in any special line which they are going to take up, whether it is worms, or sera, or bacteria, or botany, or whatever it is, in order to get a final polish, and then they could go out and really start business and be useful, and if they were induced to remain and take up this sort of work as a career, they would be very useful men.

39. Would those men that you are referring to staff the veterinary colleges as teachers and also take up posts as superintendents of districts?—As teachers. I do not think they would require such a specialised training as that to fill appointments as superintendents, although, of course, it would be all the better for them as superintendents if they had a Diploma of Veterinary State Medicine. I think that would be a very good thing for the superintendents, but, as I say, I do not think the superintendents require such specialised training as the research officers or the lecturers.

40. Would you think it desirable that all the European members of the veterinary service should have that training, or would you differentiate between them?—I should differentiate, because you see some men are most excellent superintendents and administrators, they like an open-air life, they like to spend their days in the jungle; whereas other men may prefer to work in the laboratory, and it is a different career.

41. Really you would have three classes of men in the veterinary service of India, if I understand you rightly. First of all, you would have a class of highly trained teachers and investigators?—Yes.

42. Have you any notion of what sort of numbers would be adequate to cope with the problems that would arise to be dealt with by the men of that class?—No, I could not say off-hand. It is very difficult to estimate, because, as a matter of fact, a man, wherever he is planted, would find work, there is so much to be done. A man can find research work practically anywhere in India.

(*Sir T. Holderness.*) I think that so far as regards any addition to the staff Mr. Drake has got the figures before him, and he can show us what the staff is at the Imperial Laboratory at Muktesar.

(*Mr. Drake.*) Yes.

(*Chairman.*) Then we can take evidence as regards the numbers from Mr. Drake.

(*Witness.*) There is a Laboratory in Muktesar, where serum is prepared and some good research work is done—I do not know how many men there are there—but at any rate it is the only place where they manufacture serum. There is another laboratory in Bombay, and there is one in Calcutta. The one in Calcutta is an elaborate laboratory and is capable of doing any kind of work, if only the man were there to do it. I believe also there is one in Madras and another in Lahore, but I have not seen them. The establishments are there available for research work if the men were there to do it.

43. (*Chairman.*) At the veterinary colleges do the same men do both teaching and research?—I do not think they do any research work as far as I know in Madras and Bombay. I went in once or twice to the Bombay College, and did not find them doing any research work. If any research work is to be done in Bombay I think they go next door, to the establishment in Parel, where they make the cholera and plague serum, and Colonel Bannerman helps them. In my own establishment we did some research work of sorts, and investigated a few diseases. I trained some natives, who were very keen. We did a certain amount, but I could not possibly call it the higher research work. It was good enough as far as it went, but I do not place it at all high. It always struck me that if a young man were there who was really very highly trained he might have done very well.

(*Mr. Drake.*) May I point out with regard to the suggested separate special teaching of researchers that the principle the Government of India has hitherto adopted has been to select a man from their service and have him trained in this country, like Major Holmes, for instance. Major Holmes was trained in that way, and another officer has since undergone very much the same sort of training.

(*Chairman.*) Somebody is selected out there, sent over to England for special training and then sent back to India.

(*Mr. Drake.*) Yes, there is the advantage that the specially trained man is the man whom the Government of India after an experience of him have selected as being the man they want.

(*Sir T. Holderness.*) That is for the requirements of the Central Laboratory at Muktesar.

(*Mr. Drake.*) Yes.

(*Witness.*) That does not quite cover the ground that I have in my mind's eye. You see there is a laboratory in Bombay without a staff so far as I know, and there is another one in Madras, which so far as I know has no staff either. In Calcutta there is one with a native lecturer whom I taught to diagnose, and there is an assistant who cuts sections. There is a staff there, but there is no head except the principal of the college, who has not got the time to attend to it.

44. (*Chairman.*) As I understand, in public health laboratories there are two classes of investigation, one dealing with well-known forms of disease, and just reporting after microscopical examination on ordinary cultures. That is practically routine work, and almost anyone can do it. The other is work involving specific investigation which adds to existing scientific knowledge. I do not know whether in the course of your veterinary work you have had time to take up either of those?—I have done some research work and I have trained a native lecturer in Calcutta to do the routine work under my supervision.

45. So that he can make ordinary cultures?—Yes, he can do the general routine work, but there is no man to superintend the laboratory, as it should be, even for routine work.

46. Just go back to the three classes of men you have mentioned, I understand that the first class is the investigator and teacher? — Yes—I mentioned the superintendent first; he is really more important, perhaps.

47. The others are the Europeans who occupy the leading positions, and who deal as veterinary surgeons with the specific cases that arise?—They are natives, all of them. The men who are really veterinary surgeons, who do veterinary surgeons' ordinary work as performed in this country, are natives. In the colleges the lecturers practise too for the instruction of the students.

48. (*Sir T. Holderness.*) Are they natives?—In my college they are, except the assistant principal. In Lahore I believe several of them are Europeans. In Bombay there are two Englishmen.

49. (*Chairman.*) You think there is a demand for more carefully trained scientific men in the veterinary service in India ?—Yes, certainly.

50. And the training you suggest, if I understand it rightly, is that after taking the veterinary qualification, they should take the post-graduate course at the Royal Veterinary College, and that should be followed by a specific course in some laboratory where they would get the higher training necessary for a diploma in veterinary state medicine or veterinary hygiene ?—Yes, and they should also have opportunities of study in India in order to pick up the technicalities.

51. A sort of probationary year ?—In India ?

52. Yes ?—Yes, they might have that, but I mean to say this, that a man who has got to work in a laboratory in India has to learn technical details connected with management which he does not learn in England. If he does not know these little technicalities he cannot do the work. This refers to all the men, especially to laboratory men. They sent out one young man, a most excellent young man, who did not know much, but who had some idea of laboratory work. He was placed in my laboratory, and he did not get on at all well. He could never get a pure cultivation by the slightest chance, the vegetation of Calcutta defeating him. To learn how to do that is a knack which you can only learn in the country itself. That is only one item. I mean to say a young officer who goes out to be a bacteriologist or a research officer should not only have training here, but he should also have training in India itself, in the plains.

53. That would be, of course, after selection for the service ?—Yes. That is an administrative point that does not concern me.

54. (*Sir Thomas Elliott.*) With regard to the men who go out under the present system, do the majority of them prefer administrative work to laboratory work ?—I do not know. It never struck me that any of the young men knew enough to run a laboratory except Mr. Gaiger, who is now dying of glanders. There is another young officer I know who might be taught, but it would take two years for him to acquire enough to run a laboratory.

55. If I understood your reply to the Chairman as regards the provision of the veterinary staff in India, it is first of all that there are a certain number of men, not very many, who are engaged in laboratory teaching work ?—Up at Muktesar, yes.

56. Secondly, there are a certain number of Europeans who are engaged in the work of superintendence—who are administrative superintendents ?—Yes.

57. And thirdly, under those are the ordinary Indian workers ?—Yes, the superintendents have a number of native veterinary surgeons under them.

58. Would you say that the men who go out to you now are good enough for the work of superintendence—for the administrative work ?—I think it would be better if they had some higher training. They can rub along now. The young men that I have known are really quite excellent young men in their way, but they are young men, and they certainly do make mistakes, and it seems to me that we are only at the beginning of the business now—that science is developing, and that public opinion in India is developing. Whereas a few years ago they did not know that there was such a thing as a Veterinary Department, now they make rather a hubbub if the Veterinary Department makes mistakes. So not only is science developing, but public opinion in India seems to be developing also, and I really think it would be a sound thing if these young officers who are going to be in the department many years should have a higher education, as so many questions may crop up.

59. Of course, if that is so as regards the administrative officers, still more is it so with regard to those who are going to teach or do research work ?—Yes, actual lecturing of course for a man who has been through the Veterinary College, supposing he can lecture—some people have not the faintest idea of public speaking or lecturing—but given a man who can lecture, he does not require very much training to be able to lecture on the ordinary routine things; his knowledge learnt at the college will carry him through very well. But I have always thought myself that it would be sound if in the lecturers there were a sort of reserve for higher things, if necessary.

60. Would you agree that a lecturer is usually a much better lecturer if he is also engaged in research work ? Is it a good thing for the same individuals—members of the staff—to combine teaching and research ?—It depends. If a man lectures on bacteriology it would be a very good thing if he works in a laboratory as well. If a man lectures on surgery it is a good thing for him to be always doing surgical work, and the same thing applies to a man lecturing on botany; it is a good thing for him always to be amongst his plants and to carry out his research work there.

61. He should lecture more in a groove, as it were ?—Yes, it is a good thing for a man to specialise, and to keep to that special subject—certainly for the State if not for himself.

62. Do the members of the department, speaking generally, contribute much and prepare papers for scientific periodicals — for instance, the Journal of Comparative Pathology, which you probably know ?—You mean McFadyean's ?

63. Yes ?—The one in India is dead.

64. Why did it die, do you know ?—I do not know.

65. For want of scientific interest ?—All I know is that it died, and I was rather sorry, because when it started it promised to be a good paper. It started like all these periodicals, with a great flourish.

66. You would say then, always speaking generally, that the members of the department are not very much in touch with scientific work elsewhere ?—I cannot say much about that. A man may be constantly reading periodicals and keeping himself up to date, and yet never write a word.

67. I suppose the economic interests in the well-being of animals in India are very considerable ?—Oh, yes.

68. And there is really a large field for useful scientific and administrative work ?—Undoubtedly,

69. I think you said not only in connection with disease but also in connection with breeding ?—Yes.

70. You would probably, therefore, welcome any arrangements which we might be able to devise which would place at the disposal of the officer occupying your position better trained men than are available at present ?—You mean in general ?

71. Yes ?—To raise the standard for the whole department ?

72. Yes, for the whole department ?—Yes, I think that would be a good thing. I should like to apply it more particularly to the research officers and principals of colleges.

73. But you think it would be worth doing having regard to the economic interests of the live-stock industry ?—Yes, undoubtedly.

74. (*Sir T. Holderness.*) Have you been for the greater part of your time in Bengal ?—Yes.

75. When you say that you know practically no Indian officers who are competent to do research, do you speak of the whole department, or only the young men who pass through Bengal and come directly under you ?—I am speaking particularly of the men in my own experience in Calcutta, but I may add that I have heard of nobody among the young officers, except Mr. Montgomery, who left, Mr. Gaiger, who is dying from glanders, and Mr Kerr, who came to Bengal and was transferred.

76. As a matter of fact you have been only in Bengal ?—Only in Bengal.

77. You have, therefore, only seen a very limited number of officers—the one man at a time who has passed through your hands, as it were ?—Yes.

78. Have you been to Muktesar, the central laboratory ?—Yes.

79. Do they do research work there ?—Yes.

80. Then that is an exception to the general statement that there is no research in India ?—I did not say that there was no research in India.

81. I beg your pardon, I thought you said that there was practically no one competent to carry out research in India?—Oh, no, I was speaking of the colleges. The Muktesar and the Kasauli Institute of course are things apart.

82. The Kasauli Institute is not under the Veterinary Department?—No; they are institutions for research apart altogether.

83. Research in India is more or less concentrated at the central veterinary research institute at Muktesar?—Yes.

84. The institution at Kasauli is a Pasteur Institute and technically is not under the Veterinary Department?—That is so. A certain amount of work was done by Mr. Montgomery in camels; and a certain amount of work was done at Lahore by Mr. Gaiger I do not know what it was, but it was not very important.

85. In addition to the three veterinary colleges you mentioned at Calcutta, Madras, and Bombay, there is a veterinary school at Lahore; that is not a college, is it?—Yes, that is a college. There is a college in Lahore, a college in Madras, a college in Bombay and a college in Calcutta. There is a veterinary school in Burmah.

86. Those are all teaching colleges for teaching the native subordinates?—Yes.

87. The laboratories in Bombay and Madras at which you say no research work is going on—I suppose that is in connection with teaching, is it not?—I do not know the one in Madras, but in Bombay and Calcutta they are intended, I believe, for something higher than mere teaching; they are used for teaching but they are intended for something higher—at least, at my laboratory that is the case.

88. At any rate you say there is a need for more investigators and better trained investigators in India?—Yes.

89. Would that involve a larger European staff?—Yes.

90. Is the policy of the Indian Government at present against increasing the numerical strength of that staff?—I do not know. As you ask me, I will say this, that whenever I suggested to the people in India that they should get more men, I was told that the people in England would not give them.

91. The people of England being the Secretary of State, I suppose?—I suppose so. I should have been very glad to have had help in Calcutta, but I was told it was no use applying for it as the men would not be sent out—it was some time ago that I spoke about it.

92. Then, I suppose the idea is that the present staff is mainly for administrative and supervision purposes with one central place where original research is carried on?—Yes.

93. And with certain colleges for the elementary instruction of subordinates?—Yes.

94. Just one point about the suppression of infectious disease. Is there any legal provision, such as exists in England, for suppressing infectious disease, or have you to rely on administrative processes?—As regards cattle disease, so far as my knowledge goes of the Province of Bengal, there is no provision for stamping out disease in animals except in horses and dog.

95. Where those conditions are in force they are locally in force, I understand, for the particular town or cantonment, are they not?—No, they are in force throughout Bengal, and, so far as I know, in Eastern Bengal.

96. With regard to rinderpest, that is a matter of persuasion?—Entirely.

97. And you rely on the injection of sera?—Yes.

98. (*Mr. Read.*) What sort of salaries are paid to these veterinary officers in India?—The highest subordinate grade in Bengal is that of a deputy superintendent; he may reach 400 rupees a month.

99. What is the commencing salary?—They start as veterinary assistants, and get about 30 rupees a month, and that is low. They have various allowances, but their actual pay start with 30 rupees.

100. Are any of these men available for employment outside India at all?—Yes, the graduates of my college go to the Colonies and to Singapore and down the Straits. They were available to go to East Africa and those sort of places.

101. I suppose they are trained in the investigation or treatment of camel diseases to a certain extent?—I should think probably in Lahore they are, but in my college in Bengal, where they never see a camel, camel diseases would be taught in a casual sort of way—only just mentioned.

102. That is rather a serious thing with us in the East Africa Protectorate. We rely on camels for our transport in the northern part of the Protectorate, and we have had great mortality among camels from a disease which they call the mumps. We treat it as well as we can, but we are in want of men with expert knowledge, and I was wondering whether men of that kind could be obtained from India?—Not from my place.

103. But from India?—Oh, yes; there are a number of "salutris" who have some knowledge, and they could certainly be trained for that work. Perhaps the Lahore College could supply the men.

104. I suppose Dr. Theiler's laboratory in South Africa would scarcely be suitable for the training of your men?—Training men for this Veterinary Department?

105. In the post-graduate work?—To send them out there, do you mean?

106. Yes?—I do not know what his place is like, but a man can learn something in any laboratory.

107. Of course, but there they are in the thick of animal disease, and the laboratories are extraordinarily well-equipped?—I should think it would be an excellent thing, but whether it would be as useful as a regular course for average non-research men I do not know. I should think very likely it would be useful to some selected research officers, such as Major Holmes and Major Baldrey to visit those laboratories.

108. There is just one more point. The question was raised as to whether the veterinary officers in India kept in touch with the scientific research which is being done elsewhere. You probably know that very effective steps have been taken at the present time to provide for that by the Tropical Diseases Bureau. The Tropical Diseases Bureau has a veterinary section, and they are issuing bulletins which purport to deal with veterinary research practically throughout the world. India is contributing towards the bureau, and is taking a great number of copies of the bulletins?—Yes. The veterinary journal, which is now dead, used to give a great deal of very valuable information and extracts from scientific periodicals published abroad. I am sorry that it died.

109. The Tropical Diseases Bureau is a very complete organisation now. Sir John McFadyean and Mr. Stockman supervise the work?—I do not know whether the officers in India contribute very much.

110. It takes in human diseases as well as veterinary subjects. The India Office contributes 500*l*. a year to it. The first veterinary bulletin is coming out almost at once, I think?—Yes.

111. (*Sir Thomas Elliott.*) With reference to the questions Sir Thomas Holderness put to you, do I understand that the teaching staffs of the colleges and the research staff of the research station are obtained from the veterinary department—that is, are the professors and teachers at the colleges members of your Indian veterinary department?—Yes, the European lecturers and principals are all members of the Imperial civil veterinary department, and of the English veterinary profession. The native lecturers are graduates of Indian colleges—so far as my own college goes, at any rate. They are all men that I have trained myself, and they are officers of the Provincial Veterinary Service.

112. Does that apply also to the research station?—In my college, yes.

113. (*Sir T. Holderness.*) No, at Muktesar?—I do not know enough about that to speak.

(*Mr. Drake.*) The bacteriologist now is Major Holmes, who was a member of the Army Veterinary Department. He joined the civil veterinary department, and his assistant is Mr. Cross, who was recruited in this country under the present arrangements.

114. (*Sir Thomas Elliott.*) We have been talking of this memorandum which I have before me, and I see it says: "It has not been found possible to insist on "a higher standard of qualification and bacteriological "experience than that above indicated." I wondered whether that remark applied to the members of your department who teach, and the members of your department who carry on research. There is no attempt, is there, to obtain men in this country of higher scientific training and experience in research matters than is adopted generally with regard to the selection of staff?—So far as I know, the India Office do the best they can. They go to some trouble to secure the best men they can, but the young men who are ultimately recruited for the civil veterinary department do not take it up as a career from the very beginning. They have to wait their chance and a vacancy; in the meantime they work as ordinary veterinary practitioners. It would not pay men to go through long post-graduate study at their own cost under present circumstances. The knowledge which is quite good enough for an ordinary veterinary practitioner in England is not adequate for a young man who is going to be an administrative veterinary officer in India.

115. And still less would it be adequate if he is going to teach and carry on research work in India?—Still less.

116. Therefore you would agree with the view that it is desirable to raise the whole level of qualification, not only as regards the teachers and the research workers, but even as regards the administrative superintendents?—Yes.

117. (*Chairman.*) As regards the European staff, your opinion is that, speaking generally, some additional training beyond what is now given is desirable?—Yes, that is so, and it will be felt in the future more than it is at present.

118. As science advances?—Yes. Science is advancing in a most extraordinary manner, and public opinion is also developing in India. Public opinion in India is quite different now from what it was when I first went there.

119. We may take it that there would be a desire among the population of India for men with that kind of knowledge?—Yes, and I think hostile criticism would be made in cases where the men made serious mistakes, and if a man has not sufficient knowledge he is, of course, apt to make mistakes.

120. You feel that a staff of 32 really highly trained Europeans, for veterinary service in India to do the teaching and investigations and the reporting on particular cases, and the superintending work, is not enough?—Not nearly enough.

121. So that you think there is need for more in number and more highly trained men?—Yes. In making that remark I do not want to find fault with the India Office altogether. You must remember that it is a new thing, and the executive work must in the end always be carried out by natives.

122. You rather put it that the conditions are altering as regards public opinion and scientific knowledge, and as regards demand, and it is a question on the part of the Government department to meet the new requirements, and not a question of any complaint of the department at all?—That is so.

123. (*Sir T. Holderness.*) Could you venture to express an opinion as to whether the terms we at present offer in the Veterinary Department are sufficient to attract men of better qualifications?—I think the pay is sufficient for the ordinary superintendent at present, but if any higher training is to be given it should be given at the expense of the State, and the young gentleman who receives it should be considered an officer of the State, and be paid his ordinary pay besides the cost of his post-graduate instruction, because the things which the ordinary practitioner learns after the post-graduate course, as I sketched it out, will be practically useless to him for anything except in the State service as an administrative or research officer.

124. After recruitment you think that special training should be given?—Yes, he should be recruited and paid.

125. Are the Study Leave Rules applicable to the Indian Civil Veterinary Department?—They are applicable to officers. I do not know whether they would be applicable to a young man before he comes out; I think not.

126. An officer can obtain leave after he goes out for returning and improving himself in this country?—Yes; but only, I think, after he has qualified for furlough. I may add that in my own case I was rather liberally treated in that respect. I came home and volunteered to go through post-graduate courses, and was given every facility for doing so, and I got an allowance; but I must add that owing to my seniority, my furlough pay was sufficient for the needs of myself and family.

127. (*Chairman.*) Where did you take those courses?—At Cambridge, and at the Veterinary College in London.

127*a*. *Note.*—When returning a corrected proof of his evidence Colonel Raymond wrote:—"I desire to add the following remarks to my evidence: The India Office appears to think that Indians may be given appointments in the Imperial Veterinary Service—after due training. I have done more to push on the Indian than most officers in my department, and have no prejudice against them on the score of their race, &c. I merely write of the Indian as I would of any other person or class, and record my opinion that the native material out of which reliable Imperial veterinary officers can be made is not in sight. Possibly in 25 years or so things may be different, but veterinary matters do not appeal to Indian gentlemen of education at present, for whom there are many other openings.

"Special allowances should be given to English research officers and lecturers, especially to married men called upon to reside in Calcutta, Bombay, and Rangoon (I cannot speak about Lahore and Madras), on account of the cost of living. I have found lecturing and laboratory work more trying than superintendent's work. The native veterinary assistant is under-paid in the lower grades."

Mr. FRANCIS C. DRAKE called and examined.

128. (*Chairman*) We have not a précis of evidence from you?—No.

129. Would you just tell us the position you now hold and the experience you have in this matter?—I am assistant in the Revenue Department of the India Office. That is the department by which these officers are engaged.

130. Have you been in India?—No.

131. We have two printed memoranda dealing with recruitment before us. I think you have seen those?—Yes.

132. In the second one you speak of the duties that are divided amongst the officers. We understand there are 32 officers discharging these duties in India, besides, of course, the native staff?—Yes.

133. Taking the last of those three duties, "Cattle disease and cattle breeding," does that include reporting on specimens taken, and making cultures and miscroscopical examinations of the different disease products. Supposing a diagnosis is a difficult one—I do not know whether this arises—would that be sent to be reported upon?—I am not able to say.

134. There is no specific provision for carrying on research for advanced knowledge of any particular disease?—Except at Muktesar.

135. Do you know what the staff there is?—The staff includes two members of the Indian Civil Veterinary Department, with three European assistants.

136. Do you know anything of the nature of the work carried on there?—It is, to a large extent, the production of sera for use by the officers in combating the outbreaks of cattle disease; I think a large portion of their work is the actual production of the sera.

137. For the whole country, in fact?—Yes.

138. That must be pretty heavy work? — Yes, undoubtedly; they produce a very large quantity.

139. Would they have any time for carrying on what we call special original investigations?—There is some done, but not on a very large scale, I should imagine.

140. Can you say anything with regard to the type of man supplied. Do you know what the conditions are, whether you can at present command highly qualified men for the Indian Veterinary Service?—The number of men who come up is certainly less than it was, a few years ago. We have about four or five a year, I suppose, present themselves having the qualifications we want, such as post-graduate training, but some of those may be personally or otherwise unsuitable.

141. The vacancies appear to average only about three a year, do they not?—No, less than that. There were three this year, but it will be less probably in future, and for some years before that there were less.

142. Even for those very few vacancies you have difficulty in supplying suitable men?—We have.

143. You have heard what Colonel Raymond has said about men being specially trained for special work?—Yes.

144. Supposing you wanted men of that sort, what would be done to get them?—You mean to say for camel diseases and that sort of special inquiry?

145. Yes. Supposing there was a specific problem that you wished to investigate in India, or that there was somebody that you wished to put at the head of a college or school or laboratory to direct research with a large staff under him, where would you look for that man?—In the case of the cattle-diseases post, which was filled by a man newly appointed, we at first were very fortunate in getting a man who was an extremely well-qualified man. He resigned and went to a better paid post elsewhere, and we had to fill his place. In doing that we got a man who was well qualified, but we doubted whether he was well enough qualified to take the specialist's post. He was appointed to the department and he has been doing the work, but we felt doubt whether he was a suitable successor. We could not find a man equal to the first holder of the post.

146. In your experience at the India Office do you agree with what Colonel Raymond said about wanting more men in India who have special knowledge?—There is a hope that a great many of these appointments may ultimately be filled by natives, although at present that is not very practicable, I am afraid. We have occasionally received applications for more appointments but they have not been very many, and I do not think there is any expectation that there will be large increase in the demand in the next few years.

147. (*Sir T. Holderness.*) It is a question of money partly, is it not?—Yes, very largely.

148. And partly of general policy as regards the employment of Europeans versus natives?—Yes.

149. (*Major MacMunn.*) You refer, I suppose, to an increased demand for treatment, and special treatment. A great many of the animals die through the act of God, and otherwise, and there may be no limit to the demand that may eventually arise?—The demand for treatment, I imagine, would be met by the native staff.

150. You would turn out native practitioners eventually?—Yes. They are being turned out in a considerable number at present.

151. (*Chairman.*) Do you think any steps are desirable for getting a supply of more highly trained men?—I think that the smallness of the department and the small number of vacancies is a great handicap, and that it would be an excellent thing if the other Services could combine in some way, so that, as Colonel Queripel suggests in his note,* the vacancies should be notified at one time in order to direct greater attention to them. It might be possible to follow that up. I do not know whether the India Office would be prepared to concur, but it is a suggestion that might be made that there should be a Joint Board for selection. Whether the India Office would agree to that or not I cannot say.

152. To put it shortly, the number of vacancies occurring is so small in India, and it is so doubtful whether you will have more, that for that alone it is hardly possible to make special provision?—I do not think that any new arrangements should be based on the expectation that there would be a large increase in the staff.

153. You think it would be better for the different Government Departments to pool the appointments, as it were, and to have them thrown open to suitable men just as the ordinary Civil Service officers have been recruited?—Yes, I think that is a suggestion that might be entertained, certainly.

154. (*Sir Thomas Elliott.*) How long ago was it that this staff was started?—It was started about 15 years ago. The number was then 16, and it has just about doubled in the 15 years.

155. I rather gather that you yourself are the author of this Memorandum*?—Yes.

156. Am I right in thinking that underlying the Memorandum is a strong idea on your part that you are not, so far as India is concerned, getting quite the quality of man that you would like to get?—I do not know that I should go as far as that. The idea underlying it is that we have considerable difficulty in getting the men we do get, but I am not prepared to say that the men are not very good men.

157. No, but for instance in the third paragraph there is the expression of an idea, at any rate, that you would like, if possible, to have a higher standard of qualification and bacteriological experience than you have now?—Of course, we should like to insist on as high a standard as we could.

158. I do not want to press you too hard. There is a feeling on your part, is there not, that the standard is not quite so high as it ought to be?—If we could get a more highly qualified set of candidates no doubt it would be better for the department.

159. But do you think it would be worth the while of the Government—I will not draw a distinction for the moment between the Government of India and the Home Government—to devote funds for the purpose of producing the article that they want?—I do not know exactly what the point of view of the Government of India is about the superintendents. I think it is rather difficult to say whether we should give them further training in this country before sending them out. When the Government of India want a man to be qualified for research work they have hitherto sent him home to be trained for about two years in this country, when his experience has matured, and they have made up their minds that he is a suitable man. Besides that they give opportunities so far as possible to young men to come home for some months and take up courses and refresh their knowledge from time to time.

160. (*Sir T. Holderness.*) That is under the study leave rules?—Yes.

161. (*Sir Thomas Elliott.*) You would not think it worth while to secure the type of man you want before he goes out?—I really think that it is not so much a matter of training that we were thinking of in saying, "It is not found possible to insist on a higher standard of qualification," but rather experience. In the case, for instance, of Mr. Stockman, or Mr. Montgomery, or, I might add, Mr. Cross, who is now the assistant bacteriologist, they had had experience in a bacteriological laboratory as teachers or assistants, and that was something more than just going through the course. That is really what we were thinking of—men who had taken already a position in this country, and become assistants to professors, and so on.

162. But you go on to say, do you not, that men with a special training in bacteriology are hard to find?

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* Appendix II., 1.

* Appendix I., 1.

—The word "training" should have been "experience" perhaps—that was really more the idea.

163. (*Sir T. Holderness.*) A special training as distinguished from the post-graduate course—the three months' or six months' course, I suppose?—Yes.

164. Prolonged practical training?—Practical training which would generally take the form of teaching, I should imagine—that was the idea.

165. (*Sir Thomas Elliott.*) I understand that you would agree with what Colonel Raymond said, that both for research work at Muktesar and for the teaching work at the Colleges, you do require men who have had a good scientific training?—Yes.

166. They are the persons who are going to influence the whole study of veterinary surgery in India?—Yes.

167. They may make researches, and they may teach, and that being so I should not have been surprised if you had thought that it was necessary that the men who were going to do those things should before their appointment have had a very thorough scientific training?—I think one could consider that a man who has gone through a post-graduate course would have had a thorough scientific training.

168. (*Chairman.*) How long is that course?—From three to six months.

169. (*Sir Thomas Elliott.*) Do you really think that to go through a post-graduate course of from three to six months is a sufficient training for a man who is going to conduct research work, and a man who is going to teach and influence the whole veterinary profession throughout India?—It is difficult for one who is not acquainted with the actual teaching and the conditions of the veterinary profession to say exactly what standing these men have who have gone through this training, but I should imagine that a man who has gone through it with distinction is in a very good position to do useful work.

170. You mentioned the case of Major Holmes. Do you know what salary Major Holmes receives?—He receives a military salary and a civil allowance, which together come to 1,100 rupees. He has a local allowance of 200 rupees also: that is 1,300 rupees—about 1,000*l.* a year roughly.

171. (*Major MacMunn.*) Does not Major Holmes belong to the Civil Veterinary Department?—Yes, but he was one of the military officers who came from the Army to the Department, and his salary is still on the military basis, and he receives a civil allowance in addition.

172. (*Sir Thomas Elliott.*) He gets about 1,100*l.* a year?—Yes.

173. Could you say how much the principals of the four teaching colleges get?—They get a local allowance of 100 rupees, and their pay, which, of course, varies. If they are civilian it is a grade pay running between 500 and 1,200 rupees a month, and if they are military officers it may be higher.

174. Out of these 32 men, I suppose promotion to the position of head of one of the teaching colleges does not go by seniority, does it?—No, I do not think it does. It will probably go by seniority within the colleges. But members of the Department are liable to be transferred from one appointment to another.

175. (*Sir T. Holderness.*) The Department is one, is not?—The Department is one.

176. (*Sir Thomas Elliott.*) Does not the result of that arrangement mean that you would give what is probably a fairly high average, but that you may be giving as much as 960*l.* a year to a somewhat inferior superintendent while you are paying considerably less to the principal of a teaching college?—Yes, the pay rises by regular stages according to length of service, and if a man of shorter service is at the head of a college he will probably be in receipt of less than a superintendent of longer service.

177. Do you think it is quite reasonable to put the heads of the Research Laboratory at Muktesar and the heads of the teaching colleges and the worst administrative superintendent all on precisely the same level as regards salary?—I think it is quite questionable whether the administrative superintendent's work is not of more importance to India than the work of the head of a college.

178. Do you really think so?—I think that view might be taken.

(*Major MacMunn.*) Which is the least selective appointment of the two? Which would you select more carefully—the superintendent or the head of the college?

(*Sir T. Holderness.*) I think it really varies with the aptitude of the man. The Government keep their eye on the man, and if the Government find him a man capable of teaching, they make him principal of a college, and if they find him more suitable for administrative work they make him superintendent, and I should say that the superintendents are quite as useful in their way as a principal. You may have an indifferent principal as well as a good principal, and you may have an indifferent superintendent as well as a good superintendent.

(*Sir Thomas Elliott.*) I should have thought that it would be worth while to attract to this service men of undoubted scientific capacity and training in order to fulfil the functions of the head of a Research Laboratory, and in order to fulfil the functions of teaching upon the efficient discharge of which so much must necessarily depend. But admitting that you must only have a small European staff, I should have thought it would be an advantage for you to offer an attractive rate of pay. It may reasonably be that none of the men you send out would be looked at in this country either for teaching or research appointments.

179. (*Chairman.*) For example, do you have any steps taken in India to secure men of the type of research fellows in our Universities?—Do you mean by offering a higher rate of pay?

180. Yes. There are no steps taken for securing that type of man, are there?—I do not know of any case of that kind.

181. Such as a man who has, we will say, taken his degree in science at Cambridge, and then has devoted himself to two or three years' special study?—That type of veterinary officer we should like to get, but we have not made a special offer of pay for him.

182. The universal policy has been to take men for the regular selected service partly by seniority and partly by special suitability for the work, and to appoint them to the different posts?—Yes.

183. There are no higher posts either with higher pay or for which there is a special mode of selection in order to get what you would call really highly trained scientific men?—No.

184. I am drawing a distinction between the type of man who has simply left school and gone through a special professional course and the type of man who has taken high honours and followed that up with a post-graduate study of this special work?—We have offered no special rates of pay for that particular man, but still I might say that our rates of pay are higher than for any other service—the initial rates of pay.

185. But still it is the same—it is the one system for all; there is no differentiation?—That is so.

186. (*Sir Thomas Elliott.*) The salary rises through a long period of service by a comparatively small increase?—Yes, it takes about 20 years to get to the maximum of 1,200 rupees a month.

187. (*Chairman.*) As I understand from the Memorandum, there was one prize or "plum" in the service, but that has gone?—That is so.

188. Now there is none?—No, but the pay in the Indian Veterinary Service is higher at the beginning than that of the English Veterinary Service and of the Forestry Service in India.

189. It is the same salary for all, and no special prospect for what you call a specially good man?—No, not at present.

190. They start all alike, and there is nothing either at the beginning or at the end to induce a man of special ability to distinguish himself?—I think the most lucrative post at present is that of the Imperial Bacteriologist, which carries a local allowance of 200 rupees a month in addition to the pay, so that a man might get 1,400 rupees in that way

191. Is he necessarily a veterinary surgeon ?—He is now.

192. (*Sir T. Holderness.*) He was not at one time, I think ?—Dr. Lingard was not.

193. (*Chairman.*) You might go outside the service ?—That was before this service was instituted.

194. Normally, it is from inside the service, but you might go outside ?—I think it possible, but I cannot say that it is probable.

195. (*Sir T. Holderness.*) How does the pay in the Veterinary Department compare with the pay in the Education Department ?—They are about the same, they both begin with 500 rupees, but the Education Department has a considerable number of prizes afterwards which there are not in the Veterinary Service.

196. (*Sir Thomas Elliott.*) When was the Indian Civil Veterinary Department put on its present footing ?—In 1901.

197. Was there any committee which considered the matter ?—No.

198. It was settled by ordinary official correspondence ?—Yes.

199. Has any inquiry ever been made as to whether the Veterinary Department as constituted is really adequate in view of the economic needs of India ?—No committee has ever been to my knowledge called on that subject.

200. You would agree with what Colonel Raymond said, that the economic interests of India with regard to all matters connected with live stock are very considerable indeed ?—Yes.

201. And from the point of view of breeding, and the point of view of disease, and the point of view of research, it is very desirable that there should be a really efficient Veterinary Department in India ?—Yes, certainly.

202. But no organised inquiry has ever been made into the matter ?—The Government of India has never called a committee to inquire into the matter.

203. (*Major MacMunn.*) Not a local committee ?—Not to my knowledge, I ought to have said.

204. Do you attribute the small number of candidates, when these appointments are offered, to the insufficient attraction of the service, or to the fact that there are not men on the market at all ?—As to that, I should say probably it is a good deal due to there not being men on the market. Professor McFadyean, whom, I believe, you are going to see, would be able to tell you more about the actual conditions than I can, but the course of training has been lengthened, and I imagine that there may be fewer men. There is one point I should like to mention on that subject, and that is, that in 1906 and 1907, when we had a large number of vacancies, the Department was new in the eyes of the profession, and men were more attracted to it. There also happened to be at that time a good many men who had been in South Africa, and who had been thrown out of jobs there, and who were on the look-out for jobs in the Colonies—men who, if they had not gone to Africa in the first case, would have settled down to private practice at home. We engaged two of those men in 1906.

Professor A. E. METTAM, B.Sc., M.R.C.V.S., called and examined.

205. (*Chairman.*) You are Principal of the Royal Veterinary College of Ireland, Dublin, and President of the Royal College of Veterinary Surgeons ?—Yes.

206. You are a Bachelor of Science of the University of Edinburgh with Honours, and were also a Research Fellow of Edinburgh University ?—Yes, while stationed at Edinburgh, but I have been in Dublin now since 1900, when I was appointed Principal of the Royal Veterinary College of Ireland, and I have been head of it ever since.

207. What subjects do you specialise in yourself ?—Pathology and Bacteriology.

208. Will you tell us shortly what the constitution of the Royal Veterinary College of Ireland is ?—We have a Board of Governors, the Board of Governors being nominated by the Crown, the Department of Agriculture and Technical Instruction for Ireland, and by the Royal Dublin Society. We have two Charters, one granted by Her Majesty Queen Victoria in 1895, and a Supplementary Charter by King Edward VII. in 1906.

209. Have you any connection at all with either the Dublin University or the new National University ?—Not as yet, but during the death throes of the old Royal the General Purposes Committee or the Standing Committee, I believe, of the University passed a resolution that the Veterinary College should be acknowledged, and that steps should be taken to found degrees in Veterinary Science, and I think they intended to grant degrees in Veterinary Medicine—Bachelors of Veterinary Medicine and Doctors of Veterinary Medicine—but since the new National University has been established nothing has been done practically because they have been so busy with other matters making other arrangements, but, of course, as you know, the Veterinary Schools are recognised by different Universities. For instance, my old University of Edinburgh now recognises the Dick Veterinary College, and students of the Dick Veterinary College are able to obtain a degree now in Veterinary Science somewhat on the same lines as occurs in London. A degree in Veterinary Science is given by the London University.

210. Not as a diploma, but as a degree ?—It is a degree.

211. (*Sir T. Holderness.*) As a separate examination ?—Yes, and the men must conform to the requirements of the University.

212. (*Chairman.*) In the case of Edinburgh, do the men there have to study in Edinburgh ?—They must study in Edinburgh. The College is recognised as part of the University, and certain classes of the College are recognised for University graduation, and I presume that other classes may be taken out of the University itself.

213. It is a sort of affiliated college ?—It is.

214. That does not apply to the Dublin University or the new University ?—Not as yet, but I have little doubt that it will eventually, because it is the feeling of the Board, and of the profession generally, and I think I am correct in saying of the National University.

215. Your students all take their diploma to practise veterinary medicine from the Royal College of Veterinary Medicine ?—Yes, we are all teaching in affiliated colleges ; whether we happen to be in London, or Edinburgh, or Glasgow, or Liverpool, or Dublin, we prepare our students for the examinations of the Royal College of Veterinary Surgeons.

216. It is a little apart from the immediate subject of our inquiry, but supposing the degree were given as it is given in Edinburgh, does that give any license to practise ?—No, and there would be strong opposition to that. I believe every member of the profession is loyal to the profession and would not agree to any degree of a University allowing a man to practise.

217. They are mere side ornaments, as it were ?—Yes, it is stated specifically in the ordinance of the University that a man must be a member of the Royal College before he can take his degree.

218. The degree being earmarked in this subject ?—Yes ; it gives the man a University status.

219. What are the letters ?—I could not tell you exactly.

220. It gives the man the right to graduate at the University ?—Yes.

221. And as a condition precedent to practice he must have a diploma ?—Yes

222. (*Sir T. Holderness.*) It is a veterinary degree?—Yes, I think the man writes B.Sc., after his name. Most men who graduate in science, if it is a particular branch of science, say agriculture, write B.Sc. and do not put "Agri." after it to signify that it is agriculture. When we took our degree in pure science we objected to it in Edinburgh, I know.

223. (*Chairman,*) Do you have a degree for veterinary work?—Dr. Bradley is coming before the Committee; he will be better able to tell you about that.

224. As to the number of students, I see from the figures you have kindly sent us that 140 is about the average?—Yes.

225. There has been a slight increase in the last two years?—Yes, we have kept our numbers up.

226. The course is a four years' course, is it not?—Yes.

227. To take out the number of the students who graduate, the number looks rather small in proportion to the total numbers—to graduate means to obtain a diploma, of course?—Yes.

228. Twenty-seven students graduated last year—which is the highest figure—out of 145?—Yes.

229. I suppose that is spread over the four years?—Yes,

230. So that we ought to multiply the 27 by four, I suppose?—Yes.

231. Even then there is a good number who fall out?—Yes, and others may change and go to another veterinary college, or it may be that the parent changes his place of residence, and so the student goes to another college. I have, for example, lost a student just now where the parents have come to London, and it is more convenient for the boy to go to Camden Town, and he has just transferred. Of course his status in one veterinary college is recognised when he goes to a second.

232. We have the prospectus of your college which you have kindly handed in. Do the staff devote their whole time, or do they take other work as well—take medicine, for example?—They devote their whole time, and the same with surgery. The teacher of Materia Medica practically devotes the whole of the morning to the college. The teacher of Physiology is what one might call a visiting teacher; he comes and lectures and gives demonstrations, and then he is done; he is only part-time. The same applies to Zoology, Botany, and to Chemistry.

233. Quite roughly speaking, will you tell us how the curriculum is divided in the four years?—The first year may be considered as being a preliminary science year, that is to say, Chemistry, Biology, and what we term Junior Anatomy, which consists of bone segments and joints. That is the first year. Then for the second year Anatomy generally, Physiology, and what is called stable management, which really means the handling of animals, and generally getting familiar with the going about among animals. In the third year the work of the proper professional scientific treatment side begins to make its appearance. In that year they take Pathology and Bacteriology, Materia Medica and Pharmacy and Hygiene. The fourth year's work is in the Principles and Practice of Veterinary Medicine and Surgery and Meat Inspection and Obstetrics.

234. Do you teach anything in the way of administrative work?—No, we have no means of teaching a man that. That is quite outside our sphere altogether.

235. You try only to make a man a qualified veterinary surgeon?—Yes, the whole curriculum is framed upon the basis of the education of medical students with special application, of course, to the lower animals.

236. You keep it as nearly as possible to the standard of a well-fixed medical curriculum for four years?—Yes.

237. Do you think it desirable, or possible, to increase the course to a fifth year?—I refer to that at the end of my précis, and I do not think that as yet it is practicable, because the returns to the veterinary surgeon when he gets into practice are comparatively speaking poor, and the parent, of course, views the education of his son as so much capital expended, the returns being in the shape of possible fees or employment which he gets after qualifying. The number of students coming into the College has fallen owing to our stiffening the preliminary examination, and it would be a serious question for the Veterinary Colleges if it was proposed to extend the curriculum. It is all very well to speak of adding another year, but when you add another year you add a considerable lot of expense. There is the College tuition, the examination fees, the keep of the students at the College, all the accessories, and the fact that he is losing one year when he might be earning his living.

238. And also it means a minimum of five years, and when you have a minimum of five years that means that it might be extended to 5½ or even 6, if a student is unfortunate enough to be put back at his examinations?—Yes, and it might even be more, because our examinations only come twice a year, and if a student has the misfortune to be put back he loses six months, at any rate, and it is possible he might lose six months each year.

239. So that on economic grounds it is not at present, at all events, practically possible to extend to five years?—That is so.

240. With regard to the type of men who come to you, are they the ordinary boys from secondary schools?—Yes, for the most part.

241. Boys who have passed some examination?—Yes. I have tried to instil into the parents that it is their duty to insist on the schoolmaster getting a boy past a matriculation examination which will admit him into any profession which he likes to follow, and the consequence is that most of my students come with the matriculation of one of the universities, or they have passed the preliminary examination of the Royal College of Physicians and Surgeons, or they may have a degree. We have had several men come in with degrees in Arts.

242. To what extent have you had men come to you who have graduated already?—Probably not more than four or five.

243. Do you find that type of man more suitable?—I do not consider him any superior to the man who comes in with the ordinary matriculation examination. I have in my mind at the present moment four or five men who have graduated in Arts, and I do not think they are any better than the man who comes in with the ordinary qualification.

244. Do you make any difference in the case of the man who has graduated in science?—No, none whatever; we do not give him any credit for it.

245. Then in the case of a man who has graduated in the more advanced Chemistry and taken his Science degree, he would have to turn back and go through the whole course again?—He would. We as Principals of the school have no option in the matter; we have to obey the by-laws of the Royal College of Veterinary Surgeons.

246. The Royal College says it must be four years, and four years of a certain kind?—Yes.

247. Supposing you had a free hand as Principal, would you turn that man back and make him do his Chemistry over again, supposing he had taken a high place in Chemistry and had a Science degree?—I would not like to state on general terms. I prefer to examine the claims of every individual.

248. (*Sir T. Holderness.*) You would like to have a faculty of exemption?—Yes, but I would not like to state generally that I would give exemption in the case of those men who have already a qualification.

249. (*Chairman.*) Supposing they can produce certificates for Biology, Physics, and Chemistry, you would not necessarily consider them entitled to exemption?—No, because I have my own opinion about some of the qualifications of the Medical Colleges, and I do not know whether they would come exactly on a par with our own. This is what I mean: I believe that in some of the colleges where they qualify in Medicine, Biology, for instance, is not treated to the same extent as it is with us.

250. Of course there are some colleges where Biology is treated to quite as great an extent?—Yes.

251. There are certain cases where the standards are known, I suppose?—Yes, and there would be no question in a case of that kind.

252. How do these qualifying examinations from the schools compare with an examination such as the London Matriculation? Are they higher or lower?—Are you referring to the entrance examination?

253. Yes. The matriculation of the Royal College of Surgeons of Ireland is lower than the London Matriculation, I suppose?—Yes.

254. Much lower?—I am not in a position to say.

255. How does the entrance examination for the Trinity College, Dublin, compare with the London Matriculation?—The London Matriculation is the stiffest there is.

256. I am not prepared to admit that, but I will take it as the one that is perhaps best known?—Yes, and one of a high standard; but I really would not pretend to say, because I have not looked into the question of the entrance examination for the Trinity College, Dublin. Whether the general run of examination is as high as the Matriculation of the London University I would not be prepared either to admit or to deny; I simply could not say.

257. The London Matriculation and the Matriculations of Oxford and Cambridge and the Northern University interchange on certain conditions, as you know?—Yes.

258. And nothing else is recognised practically except those four; but to take the Matriculation of the Royal College of Surgeons in Ireland, that is very much lower than London Matriculation, is it not?—I think it is. I know the General Medical Council have been finding fault with certain examinations, and asking the authorities to stiffen them.

259. To go back and take the case of a boy of 16 who has gone through a four years' course, would you say that what is reasonable for him is also reasonable for a man who has passed the London Matriculation and taken his degree in Science and Physics, and Chemistry and Biology possibly, would you say that he should have no recognition?—We are bound by the by-laws of the Royal College, but personally I would give him credit for it.

260. The general scientific knowledge of a boy of 16 who had merely passed his entrance examination would be very small as compared with that of the man who had passed the London Matriculation?—That is quite true.

261. And you would give him some credit for what he had done?—If I were free to do so I should, but at present I am not.

262. You know the standards pretty well. Take a good Science degree man of London, to take London as being the more convenient illustration, how much credit would you give him if you were free to do so?—I would exempt him for the first year.

263. Not more?—No, it is impossible, and the reason why it is impossible is this: In the second year come the specific studies of his curriculum, and Veterinary Anatomy, for instance, he cannot get anywhere else than in the Veterinary College.

264. Still, that is a small thing, and, I suppose, a good many men could do that?—Yes, it is a small thing.

265. In the second year they begin Veterinary Anatomy?—Yes.

266. In the first year, roughly speaking, it is introductory?—Yes, it is really introductory.

267. And in the other years quite specific?—Yes. Of course one might claim that the bones would be specific, but, generally speaking, I would be prepared to give him credit, and exempt him from his first year's work in a veterinary college.

268 Just to deal with Physiology for the moment, for the second year it is mainly Anatomy and Physiology. Is Physiology also specific?—It is. It practically resolves itself into general Physiology, which is applicable to all animals, and special Physiology, the Physiology of the horse and the ox, and so on, which again can only be taught in a veterinary school, or where they lay themselves out to teach this particular branch of Physiology.

269. Would it be useful, having regard to the future openings in the profession, if you could get into your schools trained men of the kind you have spoken of?—Yes, but it all comes to be a question of funds. I myself have always had this before my mind, and I know my own governing body have it before their minds also, that what we would like to have is men as it were along broad lines—say a veterinary physiologist. But the first thing is where are we to get them, and secondly, when we have got them, how are we to pay them, because our income practically depends on the number of students that come into the college.

270. The adding to your numbers of four or five students would help you financially rather than hinder you?—Yes.

271. By adding a few more you would rather gain than lose?—Yes; if we had more students the cost of administration would not be increased and we would simply put that down as increased income.

272. Looking at it from the general welfare and tone of the college, would the introduction of a few such men as I have named, graduates from other Universities who have done some science before, be helpful to you?—As regards raising the tone of the students?

273. Yes, without injuring you financially?—Yes, I think the better class of man with the higher scientific knowledge would assist in the leavening the whole lump.

274. He would be older too?—He would, and he would have a sense of responsibility and so on, and would probably tone down some of the turbulent spirits, and I think generally speaking it would be good to have men of that class coming in.

275. You apparently turn your men out as veterinary surgeons at the rate of from 20 to 27, we will say, a year?—Yes.

276. Do you know what proportion of those go into the State service and what proportion into private practice?—That varies considerably. There is a certain type of man who before he enters college has already made up his mind—or his father has made it up for him—that he is going into the Army, say, and that boy always has in front of him as his ultimate goal a commission. Then there is another class of man who comes in. He is going to be a practitioner. He has got it in his head that he is going to be a practitioner and nothing else but a practitioner, from the time he enters college. That seems to be the summit of his ambition, that he is going to be a veterinary surgeon, and he is quite content to settle down in a country district and work out his destiny. There is another class of man, probably not forming a large percentage, who comes in with a certain amount of ambition, and who is prepared to go further than the ordinary student. That is the type of man I like to get hold of myself personally, because he is amenable and willing to learn and not above putting his shoulder to the wheel and making himself a good man. That is the man that hitherto I have been able to send out into the Colonies.

277. To take that type of man which is perhaps the most important type to you, do you find that many of such men are prevented from coming to you from pecuniary reasons?—I am afraid that does occur at times. As a rule the parents of the students who come to the colleges have not too much of this world's goods, and I have known good men who have actually had to cease attending college because of some sudden financial difficulty occurring at home, and I think it is the fact (and that every principal of a college will agree with me), that a student wants as soon as ever he gets out of college to go into practice and earn his living, because by that time he has apparently exhausted his patrimony, as it were, or what his father can afford to pay for him at college.

278. It has been calculated out beforehand?—Yes. One of the commonest questions I am asked by parents thinking of sending their boys to college is "What will "it cost? If it costs beyond a certain sum I must give "up the idea of sending my son to college."

279. You have no fund to meet certain little contingencies of that kind that arise?—No.

280. And if any accident occurs financially at home the boy must go?—Yes. I have sometimes had it put

to me, would I allow a boy to come to college and pay after he has qualified, and mind you I have had that request made to me by people occupying good social positions.

281. They may be professional people with small incomes?—Yes, and small incomes associated with large expenditure, as is frequently the case.

282. Now about post-graduate work, to what extent have you conducted that work?—I have conducted post-graduate courses now for five years past.

283. Over what period of time do they range?—The time is usually somewhere between 10 weeks and three months and the amount of work that we try to get through I think is too much.

284. What are the subjects?—The infectious diseases of animals and the spread of infection. Might I say I altogether disagree in one respect with what Colonel Raymond said. I think what one should aim at doing is to teach the main principles and methods. If we get the main principles and methods into a man and get him to understand that if he carries those principles and methods into practice when he gets into a laboratory of his own, we have done all that we can do, because he has to adapt himself to the special things as they arise, and to say that a man who is an adept at methods and principles in this country cannot get a pure culture in India is ridiculous.

285. To take the case of one of your good men who has been through a four years' course and the three months' post-graduate course, would it be of advantage to him with regard to ultimate research work or higher teaching work to be able to go for a year or two to a place like Edinburgh as Research Fellow—or Cambridge?—It would. I made a note here in thinking the matter over yesterday. Supposing we could pick out a man after he has graduated—an individual who is willing to come into the public service—I would treat that man exactly on the same lines as the Indian Civil Servant is treated after he has passed his examination for the Indian Civil. He is given a certain amount of money for study—not exactly study leave—when he is getting up the languages he has to be *au fait* with when he is assigned to India. I do not know how those men are chosen by the India Office at all. I know they go and interview a certain gentleman, but what are the particular qualifications which he is able to draw out of these men or find in these men I am not familiar with; but after the man is chosen, however he may be chosen, by the India Office (we will suppose he has to go to India), that man should then be allowed to go and prosecute his studies in some particular institution, or institutions.

286. It might be for a year?—Yes—a year would be abundant.

287. As a sort of Research Scholar?—A sort of Research Scholar or Fellow.

288. And his teacher would be chosen according to the subject he had taken up and with a view to his future career?—Yes, there would be no difficulty about that. I am sure anyone to whom he liked to go would be only too willing to give him some advice as to where he should go to carry out his particular line of work. Questions of that sort are probably put to us several times in the course of a session, as to where a man should go.

289. We want to get for the public service some really high-trained men, capable of occupying the leading teaching and research positions. What would the best inducement be to get the best men you can to enter your College, whether they be graduates in science or well-trained boys from school?—There are two ways in which I would do it. I have already suggested one way in my précis, namely, that scholarships might be given to boys entering the Veterinary College—boys whose ultimate destination is the public service. Those boys might be kept in the College and qualify in the College and eventually pass on after probably a year's extension into the service.

290. Of course you know the difficulty that arises in cases where you subsidise for the public services, that where the men break through, or fall out, you cannot recover what has been expended?—Yes, that is the difficulty. What I was more particularly referring to was, after a man had qualified as a veterinary surgeon, then if he is anxious to go forward into the public service, that he should be accepted into the public service after an examination of some sort or other to be determined upon, and that having been so accepted into the public service he might then be permitted to go for further training in research work in approved laboratories.

291. With a moderate contribution towards the expense?—Yes, on the same lines as a man who has passed through the Indian Civil is allowed a certain sum of money to follow up his course.

292. In that case the heads of the Veterinary College would be consulted?—Yes, exactly on the same lines as is done in the case of the scholarships that have been founded by Sir Thomas Elliott's Department at the present time. They have founded, I am very happy to say, a certain number of scholarships of the value of 150*l.* a year for three years. A student who is anxious to compete for one of those scholarships makes an application and sends in his qualifications. He also states where he will continue his studies. That is approved, or disapproved, as the case may be, and naturally a student who has come from a particular college will only go to the man in whom he has confidence, namely, the head of his college, and he will ask him what he thinks about such and such a laboratory. Or he will ask the principal of his school what laboratory he suggests he should go to, and he will get the advice he needs. Most of us in the Veterinary Colleges—at any rate in my own particular line—are familiar with the work going on in the different laboratories, and are able to give such advice.

293. And of course one type of man would go to one and one type to another?—Precisely.

294. In that case it would be necessary, having regard to the usual type of man who passes through college like that, for him to have some financial support?—Yes, I think that is the only way in which you would get the men, because after he has finished his ordinary course the parent, as a rule, says, "You must go now and support yourself."

295. Out of your 27 graduates there would possibly be only one or two who were in a position to take a further course?—It practically comes to that. When I was in Edinburgh the only men who were able to continue their work after graduation were men who were either prepared to receive a small salary working in the laboratories, or men who were able to give their time in the laboratories and work for the love of the work, or men who had already obtained scholarships, or fellowships, from the University. The ordinary man who passed through and was anxious to go into practice we never heard of again. I had myself to work for years for only a living wage, and it is the men who are willing to work for years for a living wage that need to be supported by scholarships or fellowships.

296. That is the time when financial assistance is most necessary and essential, and also the time when you have had sufficient experience of the men to be able to select the suitable ones?—Yes.

297. (*Sir T. Holderness.*) Some of these scholarships have been founded already?—Yes, by the Board of Agriculture, but they have only been in existence for two years, I think.

298. In your précis you say that the scholarships founded by the Board of Agriculture will assist in finding good men and helping them in pursuing their studies, and bring about a class of man capable of carrying on independent work?—Yes.

299. But the creation of the scholarships is so recent that as yet there has been no time for any return?—That is so.

300. (*Sir Thomas Elliott.*) With regard to this question of scholarships I rather understood from your replies to the questions of the Chairman, that your view was that any moneys which were available for the purpose of assisting in training men for the public service should be given subsequent to their passing through the curriculum of the Colleges?—Yes.

301. Just as after a boy has passed through the first Indian Civil examination, he gets 100*l.* a year in order to study certain specific subjects such as Indian language and law ?—Yes.

302. Does not that arrangement limit you to the type of man you get now in the Colleges ?—It does as regards that particular suggestion, but then I also suggest here that we might, as it were, catch him young—when he is coming into the College—and a certain number of scholarships might be founded which would be available for boys who had before them, as their future career, State appointments. They come into College, and during their progress through the College reports might be furnished from time to time by the Principal When they qualify, the State should have the first claim upon them.

303. What do you say about catching him old ?—I do not care much for the old student.

304. At the present moment, I suppose, very few veterinary surgeons have passed through a University ?—Not many.

305. You do not get many graduates of Universities —I know there are exceptions, of course ?—In answer to the Chairman I said that we have had through in the Irish College probably five or six.

306. How many of those would be graduates in science ?—None—arts.

307. Do you not think perhaps that that is a weakness, so far as the veterinary profession is concerned, that owing to the method of recruitment it gets no men who have been in touch with the general flow of scientific thought from the beginning ?—That is true, and it would be a good thing if we could get those men in, but as I said, the return afterwards is not worth the expenditure. It takes him three years to graduate in science, and then four years in the Veterinary College, that is seven years.

308. (*Chairman.*) You knocked the four years down to three ?—We are only speaking of things as they are at the present moment. That is seven years, and that means 1,000*l.* or more spent for his qualification as a veterinary surgeon, and his return from the best position he can occupy is not sufficient to warrant that expenditure.

309. (*Sir Thomas Elliott.*) That is an interesting answer of yours, and it suggests many things to my mind. In the first place, even supposing that a student, before completing his education, was under training for seven years—that might be, as the Chairman said, reduced — but supposing the State were to come forward and offer scholarships during three or four of those years, would that remove your objection ?—It would, because that is what in my idea should be done. At the present moment, so far as I am aware, there are no scholarships available for students in any of the Veterinary Colleges.

310. No, but what would you say to a system by which selected graduates in science at the Universities were given scholarships to enable them to take a two or three or four years' curriculum, whatever the qualifying period, say, a scholarship of 100*l.* or 150*l.* a year to specialise in veterinary work after their general scientific training ?—I would not like to answer that without consideration, because there are so many things that have to be taken into consideration. When all is said and done it is a special kind of man who is required for veterinary work. He must have some sort of taste for the lower animals. The mere fact that he is a scientific man will not give him that taste; I am presuming that he is going into general practice. A man who has been brought up on a farm, or who has been in the habit of more or less daily intercourse in his youth with the lower animals, is more likely to make a competent veterinary surgeon than a man who is taken, say, out of the city.

311. To go back to your previous answer, do you not think that it is a weakness, so far as the veterinary profession is concerned, that it should in point of fact draw none of its members from the men who take a scientific course at one of the universities ?—It is—there is no doubt about it.

312. And do you not think, admitting all you have said as to the necessity for his having a taste for the work—which after all exists in other directions as well —that it would be an advantage to the public department who require in increasing numbers the services of veterinary surgeons to be able to get men who have gone through their science course at a university, who have been brought into touch with the general stream of scientific thought, and who were then, at the expense of the State, or with the aid of the State, trained in the veterinary colleges as veterinary surgeons ? Is not that what happens in the case of every other learned profession ?—No, I do not think so.

313. Can you say of any other profession that practically hardly any of its members are drawn from the universities of the country; by university I do not, of course, mean merely Oxford and Cambridge, I refer to all the universities in the country ?—The training of a veterinary student in a veterinary college is practically on a par with the training of a student in a university college who is proceeding to his M.D. degree.

314. But he is not so much in touch with other scientific men, is he ?—Precisely. The training of a veterinary student is on all fours with the training of a student of medicine. The only additional training a student of medicine may have, or the only other branch of education which he may have pursued other than purely medicine, may be arts. In the University of Dublin, in Trinity College, at the present time a student has to proceed to his arts degree before he can graduate in medicine. In medicine at the present time it is five years, and if they previously went through a university course, say in science, it would make the time so long that the game would not be worth the candle. That is the drawback to the degree of T.C.D.

315. (*Chairman.*) Do you attach any importance to the association of men who are going to take what we may call the higher administrative posts, or posts like the Principalship of an Indian Veterinary College, with other scientific men ?—Undoubtedly. That is the only way we can get in touch with such men, and it is undoubtedly an advantage to a man who hopes to be able to rule and govern to have association with such men.

316. Men in other professions ?—Yes, the more association with men in other professions the better—one admits that.

317. (*Sir Thomas Elliott.*) You are familiar with the work that has to be done by veterinary officers in various directions. I rather gather from your previous evidence that you think that some special preparation is necessary for that work over and above the preparation a man gets who is simply going to become an ordinary practitioner ?—Precisely.

318. At what stage of his educational career do you think that special preparation should be given ?—I think after he has qualified—after he has gone through the rough and tumble of the ordinary work for his diploma.

319. You do not think we need in the public services men who have had the advantages to which the Chairman referred of contact and association with other scientific men in the universities ?—I think it is certainly to their advantage.

320. You would not disapprove of the suggestion, which I think I made in my questions, that as one of the means of getting what we want in the Public Services we should provide scholarships at the veterinary colleges for men who have taken a degree in natural science at the university ?—No, I would not object to that at all. I would rather agree with it, but, as I say, I see a difficulty in getting the right man. The man able to get the scholarship would not necessarily make the best officer, either for teaching or for administrative work.

321. The scholar might be selected just as we select the scholars under our scholarship schemes. He might be selected by a competent committee, and the selection might take into account the question of taste, the knowledge of country life and considerations of that kind ?—Yes.

322. (*Chairman.*) Suppose you wanted to get your ideal men for the most important appointments—which

may be few in number—in research work and as heads of colleges, would you not get them in this way? Assume that a man first of all goes to a university and gets his Science degree, and then receives some help in the nature of a State scholarship, or State assistance, and he takes say a three years' course at a veterinary college—excusing him one year in consideration of his having taken his Science degree. Would not you get the ideal men in that way either for administrative or research work, just as a man who has got his medical qualification goes elsewhere with the aid of a scholarship, and takes a further course?—I see no objection at all to that.

323. That would produce the article required as well as any human scheme you can think of, would it not?—Yes, the only thing is, as I said just now, that you might not be able to get the right man in that way. You might get a man who was a most brilliant student, but quite unsuited to carry out veterinary work.

324. You could not go by examination marks with such a system, you would have to select?—Yes.

325. And select both at the beginning of his veterinary course and at the end?—Yes.

326. (*Sir T. Holderness.*) Supposing only a certain sum was available for assisting men to qualify for the public veterinary service, would you consider it more profitably spent in scholarships for post-graduate research than in scholarships for the purpose of connecting the University with the veterinary colleges, or would you have both?—I quite agree that if we could get the class of man in as Sir Thomas Elliott and the Chairman suggested—one who has graduated from the University and comes for his veterinary degree—he would make an admirable man provided he was all right according to my requirements and had a taste for the work. Another way in which it might be done is, after the man has graduated in the ordinary way from the veterinary school and passed the final examination of the Royal College of Veterinary Surgeons, that by a process of selection or by examination a certain number of men might be chosen who would be then sent on for another year's study.

327. I understand you suggest that that should be done by means of research scholarships?—By means of research scholarships, or whatever you care to call them, and that those men should then go through a specific training.

328. Of the two plans, which do you think, on the whole, is likely to lead to the best and surest results?—That is a matter of cash, is it not?

329. If you had only a certain sum to spend, in which of the two ways would you spend it?—I think the second way.

330. (*Chairman.*) That is at the end of the course?—Yes, because already the man has shown whether he is capable of his veterinary work or not.

331. But the two are not mutually exclusive?—No, but if I had to exclude one I would prefer the second.

332. (*Sir Thomas Elliott.*) Do you not think that there is something to be said for a man having the general scientific knowledge which the possession of a science degree indicates, on which could be superimposed a specialised knowledge rather than that the knowledge that the boy gets from the beginning, from the time he leaves the secondary school, should be of a specialised character?—I prefer virgin soil. The man who comes into college, as a rule with preformed ideas, is a very awkward student to deal with—I mean more particularly a man who has probably been in practice for some time after leaving school and before he comes to college. I am speaking of a man who pretends to have some knowledge of professional work.

333. Do you not think that from another point of view there might be something to be said for the selection of men with specialised training rather than with general scientific training—that it reduces the tendency to look on the veterinary profession as something apart from other professions; that if they all entered by a common gateway, so to speak, at the beginning of things, and then specialised, some in veterinary surgery, and others in other branches of scientific work, chemistry and so on, that that would create a certain sense of equality, a certain sense of the comprehensiveness of science altogether—than if the whole of his education from the time he leaves the secondary school and takes up his duties as a Government officer were of a specialised veterinary character?—Take my own case, for instance. I qualified as a veterinary surgeon, and after a time went back to teach. I found that it was necessary, or at least I thought it was necessary, or that it would be valuable if I went forward to the University, and I did my teaching, and I did my attendance at the University, and I graduated there, and I believe that applies to most of us who possess science degrees. I am not speaking particularly of the juniors and men of recent years, but of men like Sir John McFadyean and myself, and Dr. Bradley, the Principal of the Dick Veterinary College. We all took our University degrees after we had taken our M.R.C.V.S., and I do not think we are any the worse for it.

334. But are you not the exceptions? Are you not the men—I will not make you blush by saying exactly what I have in my mind—who exercised very special energy and will power in order to bring yourselves out from among your fellows?—It is possible that we were more ambitious than the others, but again the question of money comes in as regards the returns. Would you believe that for 10 years while I was in Edinburgh my sole remuneration was 250*l.* a year, and I was a full-time officer in the college? What inducement is there for a man to go through a university course, and to pass through the four years in a veterinary college, to go in for research work and higher work, and teaching work, if he is to be paid the lordly salary of 250*l.* a year? That to my mind is the crux of the whole question. The plums, as they have been termed here, are not sufficient as an inducement for the good men to go in and continue and maintain their training for the higher scientific and research work.

335. I should entirely agree, from that point of view, but I am desirous to elicit your opinion rather than to express my own. Is there not something to be said for making arrangements by which the members of the veterinary profession, or at any rate those members of the veterinary profession who take high Government appointments would be drawn from a wider area than is at present the case. At present you, in fact, only draw them from the secondary schools, or at least that is what it comes to?—Yes.

336. Is there not something to be said for some arrangements being made by which the members of the veterinary profession might be drawn from a wider area?—And from more sections of society?

337. Yes?—I think there is everything to be said in favour of a proposal of that kind.

338. You would agree, would you not, that if you could draw a man from the University and give him a sufficient subsistence allowance during his qualifying period, that men would be likely to come in larger numbers than is at present the case?—Yes, and they would be welcomed. If you could only increase the number of students coming to the colleges I am sure I, as a teacher, would welcome them. At the present time the number of students entering veterinary schools is very low.

339. From the point of view of recruiting your teaching staff would men of that type be welcomed?—Yes, because that is the difficulty we have always had to contend with in our teaching staff. Supposing a vacancy should occur on my own teaching staff—medicine, surgery, or what not—I do not know where I could go to find a man to take the place of the member of the staff I was losing. I would simply have to take as good a student as I could get who had qualified with me, and whom I knew, or thought I knew, and teach that man to teach.

340. And you cannot regard that system as a satisfactory one?—Of course it is not—undoubtedly it is not.

341. Under existing circumstances you have not really got your fair share of the trained scientific men

of the country?—No, we have not, that is perfectly true.

342. (*Chairman.*) And if you wanted to fill in a professorship you would want a man who had been through the school plus a university training, if possible?—Undoubtedly. If a vacancy occurred in the school I should have the greatest possible difficulty in finding a suitable up-to-date man and a man in whom I had confidence, and what I would have to do would be to take one of my best students and train him up to the work. That is what I have had to do in the past.

343. (*Sir T. Holderness.*) Have you no smaller appointments from which you can keep your staff recruited?—Let me give you the example of my own assistant. I have an assistant, and his post is nominally available for the best student of the final year. What happens? This man comes into my laboratory, and he works there with me. At the end of the 12 months he is a handy man, but somebody comes along and offers him a salary above what I can offer him, and away he goes. One of my recent assistants is now with Dr. Theiler in Pretoria, and the remuneration he is getting there is nearly equal to my own as Principal of the Veterinary College in Dublin. If they offer a suitable inducement to a man, you cannot keep him.

344. If research scholarships were founded, ought there to be a condition attached that the money should be refunded if the man did not eventually take up the veterinary service?—I do not know that I should be called upon to answer that question. That is a question for those who draw up the scheme. But certainly I think that if there is an idea of a man taking a scholarship for a particular duty it is intended he shall perform afterwards, if he does not follow that particular line and go on to that particular duty, then he might refund the money exactly in the same way as is done at present in the case of the contracts you make with men who are going abroad, that if they break their contract within three years they have to refund the passage out.

345. (*Chairman.*) Of course at a later stage there is much less likelihood of leakage, and a much greater chance of recovering the money, should there be leakage, than at an earlier stage?—Yes. After a man has qualified, he has made up his mind to a certain extent what he is going to do, and it is furthering the end he has in his mind.

346. (*Sir Thomas Elliott.*) That would apply to the man who has completed his Science course at the university, would it not?—Yes, it would apply to him in just the same way.

347. (*Mr. Read.*) Do you give any instruction in tropical veterinary medicine?—Yes.

348. How do you get your material?—The only way we get our material is by asking the assistance of the men who are abroad. For instance, I get slides from men in different laboratories abroad. I have had them from Mr. Montgomery in East Africa. The last collection I had was smears of East Coast Fever, but there is a difficulty in this country in getting material to teach tropical diseases. One can only follow general principles.

349. Supposing a scholar wanted to carry out research in tropical medicine, where would you send him?—As I said, it resolves into a question of principles and methods, and if he is *au fait* with principles and methods, it does not matter where you plant him to work, if he has the material and the apparatus.

350. But in this country you simply see the specimens, you do not see the thing in bulk, do you?—No, but if a man is going to undertake a piece of work—we will say, a disease of which nothing is known—he proceeds along certain lines until he is able to find something, and having found that something he again proceeds on certain lines in order to prove whether that something which he has discovered is the cause of the disease. It is all a question of principles and methods.

351. But to study a thing like East Coast fever satisfactorily you would have to go and work where East Coast fever was prevalent, would you not, because there are many local factors that one cannot reproduce in this country?—Undoubtedly.

352. In that case it would be quite conceivable that some of these scholars might have to go to East Africa and South Africa, or some other place to obtain the necessary experience, so that these sums that have been mentioned would be scarcely adequate for that purpose. There is the question of passage, and in South Africa the cost of living is very high?—I do not think so for a moment. For instance, if an officer is proceeding to India, I do not think it is necessary for him to go to Africa, nor do I think it is necessary if an officer is going to Africa that it is necessary for him to go to India, because if he sees a disease in South Africa due to trypanosomes, and meets with a disease in India due to trypanosomes, he is able to recognise it from the fact that trypanosomes are present in the blood when it is examined. It resolves itself into a question of methods and principles. If he is grounded well in methods and principles it is a question of the application of the methods and the principles to the disease, whether it is found at the North Pole or the South Pole, or in the tropics.

353. But you quite recognise that in order to get a full knowledge of it, it is essential for him to work in the country where the disease is prevalent?—Of course, if a man is going to take up a special line of research work he goes to the place where the disease is prevalent in order to get his material, but if it is a new disease he has to commence right at the bottom and work it up. He has to eliminate certain things before he arrives at a conclusion that a certain thing is the cause of the disease.

354. (*Chairman.*) With the exception of the material, which could only be got in the district, a man would be able to do his investigations as well at home as on the spot?—That is so. The line of investigation that he would have to follow and pursue in order to find the cause of the disease, he can do quite as well here; but the material of course he can only get where the actual disease exists.

355. (*Mr. Read.*) Do you think he could get his training as well here as he could from a man like Dr. Theiler, whose whole life has been given up to the study of these tropical diseases?—As regards general principles of training, I think he would, but if he wants to do a specific kind of work, it is necessary for him to go to a certain laboratory. We are talking about the education of men for general work and not specific work. The reference to the Committee, I take it, is with regard to men for the general Veterinary State Service, and not for men who are to do a particular line of work.

356. (*Sir T. Holderness.*) You are in favour of a one-year additional course being superimposed upon the post-graduate student?—Yes.

357. Might it be taken generally that you would get better training in method in the United Kingdom than outside it?—Of course. Men located in Africa and other parts of the world come to England to study the modern methods.

Major-General R. Pringle, C.B., D.S.O., called and examined.

358. (*Chairman.*) I think you are the Director-General of the Army Veterinary Service?—Yes.

359. Can you tell us the number of officers in that service?—There are 169 at the present moment.

360. About how many are appointed every year?—About seven or eight.

361. What are their salaries?—250*l.* a year plus allowances.

362. That is at starting?—Yes.

363. Going up to what amount?—My own is 1,200*l.*

364. That is the head appointment?—Yes.

365. But amongst the others?—I have a note here. Might I pass it to you? That shows their salaries without horse allowance. It varies a little between mounted and dismounted. (*Handing document.*)

366. As to the method of selection, how do you select?—These boys apply direct from the colleges in the usual way to the Secretary of the War Office. They apply at all times of the year, but I keep them back as a rule till either Christmas or Midsummer, because that is when the colleges get rid of their students, and I get more applicants then; that is the usual way. I then find out all about them that I can, and get their birth certificates, &c. Then they must have a nomination by me; that is, I have an interview with them before I recommend them for examination. They then go down to Aldershot, where they appear before a board, and the examination becomes competitive.

367. Is that a written or a *vivâ voce* examination?—Both.

368. Is it competitive, and the appointments made on the result of that examination?—Totally so.

369. About how many candidates do you get for the competitive examination?—I should like to speak of the time since the South African war, because one cannot compare things now with what they were before. Since then and up to the present moment I get 11 applications for every five situations vacant. That is the last examination. (*Handing document.*)

370. Does this failure mean that the candidate has not reached the requisite standard?—That he has not reached the required standard. He must have 60 per cent. of the marks set on that paper, and he has not quite reached it.

371. There are five who are marked as having passed?—Yes, and for the next vacancy after those four are filled, I should take one that did pass.

372. Has there been any period during those 10 years when you have had appointments that you have not been able to find suitable men for?—I do not think so.

373. You have always had men in sufficient quantities to fill up all your appointments?—Yes, certainly. Since I have had anything to do with it, I have always had the numbers I have told you of.

374. With regard to the type of men you get, are they, so far as you have seen, adequate for the purposes you require them for?—I could not improve upon them; they are quite first-class.

375. You do not have anything in the nature of research work or teaching work in the Army for the veterinary service, do you?—Oh, yes.

376. Have you any cases in which you have had to have your veterinary staff engaged in specific researches?—We send every officer to a post-graduate course. I send 16 per year.

377. At a veterinary college?—Yes.

378 Do they happen to be any of the five on this list?—No. I never send any to Glasgow, and very few to Liverpool; generally to Ireland and London, that is solely because most of our people are quartered either in England or in Ireland.

379. And you send them for a post-graduate course of two or three months?—A little under two months.

380. You do not have any men on your own veterinary staff engaged actually on research work; you do not turn them out to do research; they are engaged simply as veterinary surgeons; they are not engaged in the investigation of scientific problems, of course?—The two teachers at Aldershot are solely engaged in research work and teaching at the veterinary school at Aldershot.

381. Have they been selected from your staff of veterinary surgeons?—They are worked out from these men who are sent every year to the post-graduate course. One notices a man who is inclined that way; I should post him to a station where facilities exist, and he gradually becomes the man I want.

382. Have you had any difficulty in finding men for the advanced work or the ordinary teaching work?—No.

383. You are quite satisfied with them?—Quite.

Winchester House, 21, St. James's Square, S.W.

SECOND DAY.

Saturday, 19th October 1912.

PRESENT:

SIR ALFRED HOPKINSON, K.C. (*Chairman*).

Sir THOMAS H. ELLIOTT, K.C.B.
Sir THOMAS W. HOLDERNESS, K.C.S.I.
Mr. H. J. READ, C.M.G.
Major G. F. MACMUNN, D.S.O.
Mr. H. L. FRENCH (*Secretary*).

Major-General R. PRINGLE, C.B., D.S.O., recalled and further examined.

384. (*Chairman.*) A suggestion has been made, as I dare say you have heard, for, as it were, pooling the Veterinary Departments of the different services under one board so as to get a wider range of candidates, and then to make one set of selections. Would that, as regards your department, be of any advantage, or would you think it an undesirable thing to do?—I have not thought of it before. It strikes me just now that it would be disadvantageous to us. At the present moment it does not strike me as being in any way advantageous to us; but, as I say, I have not thought of it before.

385. You would rather that that was taken, not as a matured opinion, but as your *primâ facie* view?—Not as a matured opinion.

386. Putting it quite shortly, as regards both the quality of the men and the number coming in to fill your appointments, you are satisfied with the existing state of things?—Perfectly so.

387. Have you any suggestion to offer as to any change at all?—No, I do not wish for any change at all, but I would like to be very emphatic about the fact that I am speaking now of from five to ten years back—not before that, and not about the large number

of people we took in, with all due respect to them, after the South African war.

388. As regards the present time, and, roughly speaking, five years back, you are quite satisfied with the men you have, both as regards quality and training and everything else?—Perfectly. My reason for saying so is this: There are always a lot of recruit officers at Aldershot; and if you go down and look at the batch of young officers there and compare them with other batches of recruit officers for other corps, I think they will compare very well.

389. (*Sir T. Holderness.*) May I ask if you think you get the pick of the market in your veterinary men?—I think undoubtedly we do.

390. Yours is rather a favoured branch of the Veterinary Service?—Most undoubtedly.

391. (*Sir Thomas Elliott.*) At what age do they enter your department, as a rule?—The limit is 27, but we do not like them as old as that, and, but for one or two causes, I should have asked some time ago for the age to be reduced. On this last list that I showed you the average is 22. We like to get them immediately they leave college, and there they cannot qualify until they are 21.

392. I was going to ask you what happens to these young men between the time they leave college and the time they come to you?—On that list there is one man, to take him as a sample; he passed last July or the beginning of August, and he is four or five months under age. He cannot get a diploma until he is 21 on the 1st of December, and we cannot gazette him until then because he is not a qualified veterinary surgeon, so he simply waits.

393. I suppose they usually get their diploma—well, not beyond 22?—No, I am afraid a good many go later than that; but we, as a rule, try to get them as soon as possible after 21 or 22.

394. You do not think that it would be of any advantage to you that, after they leave the college, assuming they leave the college at 21 or 22, they should spend some time in specially preparing for their work?—The War Office keeps them under education for two years after they join.

395. That is, in other words, you are really training them yourself for the work?—Yes. A man joins to-day, and he is gazetted on probation for 12 months, from which time he goes to a military centre like Aldershot. After he has finished that 12 months, what we might call extra education, he then goes under a senior officer for another 12 months, that is two years in all, and then he goes to India, where he learns that country. It is only when he comes home five years after that that we send him out anywhere.

396. I can understand that being the case in the case of veterinary officers assigned to ordinary regimental duties; but I think you told us yesterday that they do a certain amount of research work?—Yes—in fact, a large amount.

397. For your research work do you think any advantage would be gained by securing the services of men still better trained from a scientific point of view?—I think there would; but then there is another side to the question. These research men are kept for service. In the case of the school that we have them at, at Aldershot, for instance—we have one at Aldershot and one in India—but, taking Aldershot: the school is closed on mobilisation, and the men have to go on service, and, as to these highly trained research men, there are many posts in the Army that they could not fill, that they would not be useful for, and the men we keep at present at Aldershot and in India work their way up. They show aptitude for that work from the beginning, and they work their way up. It is working so very well at the present moment that I should be very loth to disturb it.

398. You think, in view of the numbers that enter the Army Veterinary Department, that you have a reasonably good chance of getting the men you want for research work?—Perfectly.

399. What is the research work that you carry on in general?—Everything contagious at home, and everything tropical abroad.

400. Do you publish any reports as to results?—Yes.

401. In what publications are those published?—All the professional periodicals—the Veterinary Journal—and on our own research work at Aldershot, for instance, reports come up to us at the War Office here from there.

402. So far as you know, you have no official publication in which that work appears?—No.

403. Do you yourself, as Director of the Army Veterinary Department, make an annual report which is published?—Yes; these things are all published in that.

404. I thought possibly that was so?—Yes. I did not quite understand. The whole proceedings of the school are published in that report once a year.

405. As you said just now, in reply to Sir Thomas Holderness, you recognise that you offer, perhaps, more attraction to young veterinary surgeons than perhaps any other public department; but I should like to ask you whether you are generally familiar with the requirements of departments like my own, for example?—No, I am not familiar with them.

406. You are not in personal touch with the departments?—Not actually with the departments.

407. You could not express any opinion as to the means by which we can get the best men for our purposes?—I think so.

408. Perhaps you will do so?—My corps is primarily successful because it offers a living wage, that is the first thing; then, it is a very well organised corps. A man has only got to take up the King's Regulations, or Pay and Promotion, or anything of that sort, to know exactly where he will be in 15 or 20 or 30 years hence, if he is an ordinary energetic man; of course, if he is not, he will go to the wall; he will be passed over; but, provided he is an ordinary energetic man, he knows exactly where he will be at the end of a number of years, and I question if in your department he does. Does he get a living wage, and does he know where he will be, and what his promotion and prospects in life are?

409. Of course you must not cross-examine me; but still, I perfectly understand the answer you have given us. With regard to that I should say, assuming, as I do assume, that a living wage ought to be given, whatever the living wage may be, that that, I take it, is not in itself sufficient. We, on this Committee, have also to look at it from the other point of view, as to what is the best means of securing the man with the necessary training and scientific knowledge for our work?—I cannot see that there is any difficulty at all. The demand will insure the supply. If the demand is created, the supply will be forthcoming, just as it is in my own corps—at least that is my opinion.

410. I take it there is a demand for munitions of war in the Army generally?—I think so.

411. Do you go to Whiteley's for your supplies, or do you trust to the ordinary market supplies, or do you manufacture for yourselves?—I think we do a little of both, if I may say so.

412. Let me take a particular munition. I will go to the sister service if you like. Take torpedoes. I take it that in that case the Navy not only need torpedoes, but they find themselves unable to get them in the ordinary commercial way, and they therefore spend money in manufacturing them for themselves. Assuming that we want a particular article, might it not be worth the while of the Government to spend money in manufacturing that article—I am sure you follow my reasoning?—Quite so, I follow you perfectly. I do not think they would do it as cheaply or as well.

413. I will leave the question of economy to those who are the guardians of economy. I rather wanted to ascertain whether you had thought it might be worth the while of the Government, seeing they do not require an ordinary veterinary practitioner, with an ordinary veterinary practitioner's training, but a specialised article—a man with special knowledge of diseases, which is not quite a commercial knowledge, because he deals with matters which do not come in an ordinary practitioner's everyday work—to take special steps to spend money in producing the article they

require ?—I can quite understand its being worth their while, but personally I should not follow that line.

414. (*Chairman.*) You are satisfied with the article you get, and the factory that produces it ?—Well, as I put it, if the demand is created, I feel quite satisfied that you will find the men all right.

415. (*Sir T. Holderness.*) By "demand" I suppose you mean the offer of an adequate living wage and suitable prospects ?—That is so.

416. (*Sir Thomas Elliott.*) To take the Engineers or the Artillery, what is the course adopted in the Army to produce artillerymen and officers; do they trust entirely to the law of supply and demand ?—I think so.

417. What happens at Woolwich and Chatham ?—I am not an authority on this, but I think at Woolwich they used to have a great many applications, and I think they still get a sufficient number, although I do not say they have as many as they used to have.

418. But in those two cases, is not the very object of Woolwich and Chatham the training and production of the special article that is required ?—I believe so.

419. Do you think it would be unreasonable for the Government, in relation to the Veterinary Service, to adopt something like the same principle as is adopted at Woolwich and Chatham, that it should take special measures to train officers likely to be specially suited for the very special work which has to be done ?—I quite agree, but I should personally begin at the other end altogether. I do not know that I am quite an authority on this, and I am rather afraid that I am alone in my opinion, but I think, looking back that the whole thing is wrong from the bottom. For instance, if I may quote this: A few years ago, we will say, a college took in 50 students; I understand now it takes in about 50 per cent. of that number only. In those days there were four colleges, and now there are five. So long as we have this great number of colleges they must be working at a loss. It is a sort of given rule that, if money is not coming in, expenditure must be reduced at the other end. We want organisation of these colleges. Five of them are far too many. They have more sail on them than they can carry, and two or three of them are bound to go down. It is only a question of time, and, if they were reduced to a reasonable number, I think the ones left would be better off.

420. (*Chairman.*) Are you speaking of Veterinary Colleges ?—Yes. There are five now, and they are dependent on the number of students, and the number of students has gone down by about 50 per cent. and yet there are more colleges; I think a mistake was made in allowing them to be created.

421. There are two in Scotland, one in Ireland, one in Liverpool, and one in London ?—Yes; the Edinburgh and the London ones are the two old ones; the others are more or less mushroom growths,

422. (*Major MacMunn.*) I suppose they were created before the sudden drop in the number of horses used owing to the great influx of motor traffic ?—Yes, just before.

423. (*Mr. Read.*) Your problems are rather different from ours in the Colonies. Your veterinary officers have more or less stereotyped functions to perform, have they not, and there is not the same scope for research in your department. On the other hand, we have to deal with wide-spread diseases, such as rinderpest, East Coast fever, and that kind of thing ?—Quite so.

424. So that possibly from that point of view we may require the special article to which Sir Thomas refers, but to a far larger extent than you do ?—Yes, you do require them, most undoubtedly, and yet, if you come to think of it, we manage the whole of the Soudan. We have 13 officers out there just now, where they seem to me to have every mortal disease you ever heard of, and they manage very successfully. We have also got hold of the whole of India pretty well in our time, so that the record is not one barren of research, if you know what I mean.

425. Would you be willing to second officers occasionally for service in the Colonies ?—We second the whole of those in the Soudan.

426. I am speaking of the Crown Colonies ?—That question involves such a lot of things.

427. Yes; it depends of course on the number that would be required, and that sort of thing ?—Yes, and War Office grants. It is a largish question, that; it is one that would have to be thrashed out with a great many heads of departments besides myself.

428. Of course the War Office supply us with a great many military officers in that way ?—If it is meant whether I could supply them, I certainly could; there is no question about that, everything else being clear.

429. Do any of your men do research with regard to Mediterranean fever, for instance ?—Yes. We had one officer—I have forgotten his name at the moment—engaged on that particular fever some years back. He took a good deal of interest in it; in fact he is now demonstrating it in Northern India, or at least he did a few years ago or something like that.

430. (*Chairman.*) Are those researches carried on for the purpose of diagnosis in specific cases, or are they researches in order to find out the general cause of disease ?—The general cause of disease.

431. In the sense of adding to knowledge ?—Yes.

432. Do they include bacteriological work, and have you means of making cultures and things of that sort in your laboratories ?—Oh, yes. The school at Aldershot, as the veterinary profession goes, is a rather largish affair.

433. With the usual equipment of a good bacteriological laboratory ?—Quite so.

434. (*Major MacMunn.*) Within the last 10 years have you had any diminution in the number of candidates for the Army Veterinary Service ? I was not quite sure whether you said that in the last few years the number of candidates was less ?—No, there has been no diminution; in fact it is quite well maintained.

Mr. H. F. BATTERBEE called and examined.

435. (*Chairman.*) You have been nominated by the Colonial Office to attend here to-day ?—Yes.

436. Would you tell us what your official position is ?—I am a second-class clerk in the Colonial Office.

437. I think you have made out a list of the salaries that are offered for veterinary appointments in the Crown Colonies ?—I have.

438. I think we might put that on the notes without going through it.* Do you take any part at all, with regard to the appointments, in the self-governing Colonies ?—No, no part whatever.

439. You are not even consulted by way of advising them ?—No, I do not think we have ever been asked even to advise them.

440. What is the mode of selection of candidates ?—I keep a list of all veterinary candidates. As soon as any veterinary candidate applies to the Colonial Office, his application is sent to me as Secretary of the Colonial Veterinary Committee. I then send him this form (*handing document*); that is the ordinary form that we send to all candidates for Colonial employments.

441. The same as for other Colonial employments ?—Yes; it is the general form. He then fills it up and sends it to me, with his testimonials and references. If he seems a promising candidate, I then ask him to call on me, and also on Mr. Stockman, the Chief Veterinary Officer to the Board of Agriculture. Mr. Stockman interviews him more particularly with regard to his scientific qualifications, and I more particularly with regard to his personal qualifications. I then generally have a talk with Mr. Stockman, and if the candidate seems a good one, I put him on a

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* Appendix I. 3.

selected list. The next step is to ask the selected candidate to sit for a qualifying examination held by the Civil Service Commissioners twice yearly. If he passes that qualifying test he is offered the first vacant suitable post.

442. That is a special examination for Colonial appointments ?—Yes, and also for appointments under the Board of Agriculture.

443. (*Mr. Read.*) Yes, for the Board of Agriculture too ?—Yes, it is the same examination, I believe. As a matter of fact, the supply of veterinary candidates has been so extremely small that we have very often had to do without sending them to that examination. As soon as ever we get a good man, there is generally a post waiting for him, and we have to send him out immediately.

444. (*Chairman.*) So far as you are able to judge, is that examination really necessary for people who have passed through a qualifying course and obtained their diploma ?—I think that is a question I would rather you asked Mr. Stockman.

445. (*Sir T. Holderness.*) Is it intended to be a competitive examination ?—No, merely qualifying.

446. (*Major MacMunn.*) Is it a professional examination ?—Yes.

447. (*Sir Thomas Elliott.*) It is a joint administrative and professional examination ?—Yes. I may say that in one or two cases it has resulted in the weeding out of candidates to whom otherwise we might have offered appointments.

448. (*Sir T. Holderness.*) Of course all these candidates already have their diploma ?—Yes; we should not consider them at all unless they have a diploma, and we much prefer candidates who have taken the post-graduate course.

449. (*Chairman.*) In the case of those who have the diploma, and who have taken the post-graduate course, you still find it necessary to weed out—I mean apart from the *viva voce* interview ?—As I said, in one or two cases, it has resulted in weeding out a man who had passed the personal interview—whether he had taken a post-graduate course I could not say without looking it up.

450. At times a considerable interval elapses between the time a vacancy occurs and the time you are able to fill the appointment—as much as a year ?—It has been so.

451. Do you find that causes inconvenience in the Colonies ?—It has resulted in grave inconvenience in two cases recently—in the East Africa Protectorate and the Federated Malay States.

452. Has that delay been partly due to the process of the double weeding out, if I may use the phrase, or is it simply due to the fact that nobody has applied ?—It is simply due to the fact that I have no good candidate on my books.

453. You have drawn up a table on that point ?—Yes; I thought it would be useful.

454. Taking it generally, do you find that for the appointments in the Crown Colonies you have been able to get sufficient supplies of suitable men ?—No; I should like to have a greater number.

455. Apart from the question of delay ?—In the end we generally do succeed in getting a man.

456. Can you form any opinion as regards the quality of the men for the kind of work in which they are engaged—they work alone, I suppose, in some of these places ?—Yes, they do, and, of course, when they work alone, it is difficult to form an opinion as to their quality; but in one or two Colonies, like the East Africa Protectorate and the Federated Malay States, there is quite a large staff, and when the Principal Veterinary Officer comes home on leave I try to make a point of having a talk with him, asking him what he thinks of the young men we send out. On the whole they appear to be quite satisfied. Our difficulty is rather with regard to the quantity than the quality.

457. (*Mr. Read.*) You are speaking more especially of executive officers now ?—Yes.

458. (*Chairman.*) I do not know whether the question of investigation into the causes of disease and the nature of disease in Crown Colonies, especially tropical disease, has come to your attention at all. Can you form any opinion as to whether the men that join are sufficiently scientifically trained to do difficult original research work in that respect ?—I could not say. That is a question I would rather you put to Mr. Stockman.

459. As regards administrative work, you have no complaint of the men when once they are selected ?—Speaking generally, I do not think that we have received any complaints with regard to executive officers so far as I can remember.

460. For that class of work would you say, so far as you know, that the men selected by you and sent out are satisfactory ?—On the whole I think they are.

461. (*Mr. Read.*) Cannot we say that quite a number of these research men whom we send out have been very satisfactory ? Of course they have simply been picked up as we have been able to find them. Mr. Stockman has picked them up from time to time, but quite a number of them have been very satisfactory. For instance, there is Mr. Brand, who did good work, and Mr. Garden, who was sent on a research expedition to Southern Nigeria, and who also did excellent work. He is now in Nyassaland, and is doing excellent work there; and then in the East Africa Protectorate Mr. Montgomery, whose name has been referred to by the Indian witnesses, is doing first rate work ?—I should say so.

462. He is certainly a most excellent man, so that we have not done badly ?—No.

(*Chairman.*) Was Mr. Montgomery sent out by the Colonial Office or the India Office ?

(*Mr. Read.*) He came from India, and then went out to Africa on a Sleeping Sickness Inquiry for the Tropical School of Medicine at Liverpool.

(*Chairman.*) Had he been trained in the Liverpool Tropical School ?

(*Mr. Read.*) I do not know whether he worked there as well, but he was certainly out with the expedition in Rhodesia ?

(*Chairman.*) Was Sir Ronald Ross a member of that expedition ?

(*Mr. Read.*) No, I think not. I think Dr. Kinghorne was in charge of the expedition.

(*Sir T. Holderness.*) After he had been in India, he went on that expedition, and in India he had been doing nothing but research.

463. (*Mr. Read.*) Then in Uganda, I think, there is a very good research man there, Mr. Hutchins, the Head of the department. With regard to the men on the West Coast, I do not know so much about them. Is the Gold Coast man a good man, do you know ?—I do not think I have heard anything to the contrary about him.

464. At any rate the difficulty has been to get these men. Sometimes we have had to wait for months and months, and the story has been that there is no man available ?—That is so.

465. (*Major MacMunn.*) These are all principal appointments, are they not ?—No, not all; some are and some are not.

466. (*Mr. Read.*) In some of those cases there is no scope for research. In the Falkland Islands, for example, there are simply cattle farms, and there is not much question of disease there ?—No.

467. (*Sir T. Holderness.*) Some of these officers in some of the Colonies are employed, not on research, but on ordinary administrative duties ?—Yes, in the East Africa Protectorate and the Federated Malay States they are employed on executive duties.

468. (*Major MacMunn.*) I suppose there are no private veterinary practitioners in any of these Colonies ?—In the great majority of Crown Colonies I should say there were no private practitioners.

469. (*Sir T. Holderness.*) Are these men allowed to engage in private practice ?—Many of them are, I know; but I could not speak with regard to all without reference to the papers in the department.

470. (*Mr. Read.*) None of the men in tropical Africa, I think, are allowed to engage in private practice ?—Certainly not in Nyasaland, the particulars of which I have got here before me.

471. (*Sir T. Holderness.*) Have you any complaints from would-be candidates that the salaries offered are insufficient?—I have never heard complaints from the candidates themselves, but I have been told by other people at various times that we possibly would be better able to get candidates if we offered more; but, on the other hand, we do offer quite considerable salaries, comparing them with the salaries offered for other appointments. Take for instance the case of the East Africa Protectorate and Uganda and the West Coast Colonies: we offer a young fellow going out a commencing salary of 400*l.*, with passage and free quarters To a young fellow going out as administrative officer the commencing salary is 250*l.* on the East Coast and 300*l.* on the West Coast, and to a medical officer 400*l.*

472. (*Major MacMunn.*) The prospect offered is much higher pay?—That is quite true.

473. (*Sir T. Holderness.*) These salaries are fixed salaries when a scale salary is not shown, I suppose?—Yes; when a scale salary is not shown it is a fixed salary.

474. So that there is no definite prospect of increase in the case of the majority of these appointments?—No.

475. A man goes in at 400*l.* or 500*l.* and he stays there?—Yes.

476. (*Major MacMunn.*) They are not transferable. A man in Uganda, for instance, at a salary of 400*l.* is not likely to be promoted to another colony at a salary of 600*l.*?—He might be.

477. It is not one Service all pooled?—Oh, no.

478. (*Chairman.*) So that a man in Cyprus at 250*l.* a year might probably stay there all his life?—Yes.

479. (*Sir Thomas Elliott.*) Have you formed any idea as to what the reason of this dearth of candidates is?—I have asked several people, and the general belief seems to be that it is due to the introduction of motor traction during the last few years; that everybody thinks there is no scope now for veterinary officers, and so fathers do not put their sons into the veterinary profession.

480. Would not that rather have the effect of increasing the number of candidates for the public appointments in view of the fact that the opportunity of private practice has been diminished?—Not if very few go into the veterinary profession at all; and yet, whereas the number of private practitioners is diminishing, the number required for the self-governing Dominions and the Crown Colonies has, I should say, increased very considerably in the last decade.

481. Has the number of candidates presenting themselves, apart from any question of their qualification, been diminished?—I should say that considerably less candidates do present themselves, even now, than they did three years ago. I say that without looking at my books; that is my impression.

482. Has there been any change, so far as you have been able to gather, in the quality of the candidates?—I should not say so.

483. You will tell me if you cannot answer the question: Has the Colonial Office ever considered whether it would be worth while to make some special provision for the training of suitable men in a suitable way for this important service?—That is a question which Mr. Read could answer better than I can; but so far as I am concerned, I do not think it has been considered.

484. (*Mr. Read.*) I think we have tried to meet that by insisting, as far as possible, upon this post-graduate course?—Yes.

485. That seemed to us to be more or less in line with what we were doing for the ordinary medical staff. There we put them through a post-graduate course either in London or Liverpool, and we do the same thing for the veterinary officers, but beyond that we have not gone?—No.

486. (*Sir Thomas Elliott.*) Have the fees for the post-graduate course been paid by the Colonial Office in that case, or by the students?—In every case, so far, it has been paid by the students, I think.

487. No public money has been made available, so far as you know, for preparing suitable candidates for this particular work?—I do not remember any case in which we paid the fees.

488, Can you say whether that question has been considered by the Secretary of State?—I do not think the question has been raised. I should like to say I made that remark with regard to paying the fees without reference to papers, but I do not think we have ever paid the fees.

489. (*Mr. Read.*) Still, I think that probably, certainly in the case of the African Colonies and Protectorates, if we had a suitable man who had not gone through the post-graduate course, we would be quite willing to pay the fees if he did go through the course. We pay them in the case of the medical officers, but I think what happens is that most of these men who apply have already taken the course before they apply?—Yes, that is so.

490. (*Sir Thomas Elliott.*) I was rather leading up to this general question, that is, that assuming that the Crown Colonies need men specially trained in order to deal with disease in their respective districts, and those men are not forthcoming in sufficient numbers under the ordinary rules of supply and demand, might it not be worth the while of the Government to expend money in producing the article that they require for themselves?—That is a very big question. I should not like to answer that without a certain amount of thought.

491. (*Mr. Read.*) Probably this is one point you would like to bring before the Committee, that really the conditions vary to a very great degree between these different Colonies and Protectorates. If we take some of these smaller places, like Cyprus and Malta, the officers there have probably been there for years, and the demand from these Colonies is practically nil. There is just one officer at Cyprus, one at Malta, and one at Hongkong. They are comparatively healthy climates, and the vacancies there might occur perhaps once in 20 years, and even so these men are more or less concerned with routine work. Take Colonies like the East Africa Protectorate and Uganda. The conditions there are absolutely different. East Africa and Uganda comprise a sort of big stock districts, and a certain amount of staff is required, and there is a demand there, but it is really only in three or four places that there is anything like a constant demand for veterinary officers, the East Africa Protectorate, Uganda, and possibly the Federated Malay States, with an occasional man for some of these West Coast places?—That is so.

492. The circumstances are so different in the various Colonies that, as I said before, we are not dealing with a homogeneous service as in India. The whole position is so unlike that it is very difficult to give any estimate of our requirements, from year to year even?—Exactly.

494. (*Chairman.*) When you intimate that an appointment is vacant, do you state where the appointment is, and what the salary offered is?—First of all I write a sounding letter to the candidate telling him in what Colony the appointment is, what the salary is, what the conditions are, and what the allowances, &c., are, and ask him whether he would like to be a candidate. Of course, if I had a good number of men on my books, I should send a similar sounding letter to all the candidates I considered desirable.

495. You do not promote officers from one place to another? Take the one I see before me here, the Chief Veterinary Officer of the East Africa Protectorate, 550*l.* Is he appointed straight off to that position, or does he rise from one of the other appointments?—If there were a vacancy there, we should most probably promote one of the Veterinary Officers in the East African Service to it.

496. There is a possibility of rise after the man has once got an appointment?—Certainly; but if you look at the list you will see there are not very many of the bigger posts.

497. (*Sir T. Holderness.*) The prospect is really within the Colony, and, if there are only one or two posts in the Colony, the prospect of getting on is very small, is it not?—Yes, except that if there were a

superior post vacant in one Colony, I do not think we should hesitate to promote a man from another Colony if he happened to be a particularly good man.

498. Has the Colonial Office the power of taking a man from one Colony and sending him to another Colony where there is a vacancy ?—Yes.

499. (*Chairman.*) Assuming you have a vacancy in, say, Cyprus or St. Vincent, do you have the same examination for the candidate for those Colonies as you do for a candidate for the Nyasaland Colony ?—Yes, exactly.

500. (*Mr. Read.*) As a matter of fact we have never been asked to fill one of these appointments ?—I was going to say that we have not.

501. (*Major MacMunn.*) Does a man who accepts a Colonial veterinary appointment accept general service in the Colonies ?—He accepts a particular appointment in the first place. Later on he may be offered another appointment, but he is not compelled to go.

502. He cannot be transferred at the will of the Colonial Secretary ?—Speaking generally, no.

503. Then he is not a general service officer ? —No.

504. (*Sir Thomas Elliott.*) Whose duty is it to consider whether the veterinary staff in the various Colonies is an adequate staff, having regard to the livestock interests of the Colonies ?—If the Principal Veterinary Officer, say, of the East Africa Protectorate does not consider the staff sufficient, he makes a recommendation to the Governor, and the Governor then carefully considers the matter, and if he thinks that the Principal Veterinary Officer has made good his recommendation, he recommends it to the Secretary of State. The Secretary of State then considers it, having regard, of course, to financial considerations, and if he thinks that the recommendation is justified, and if the money for it can be found, it is granted.

505. I rather gathered from your previous answer that as a matter of fact you have had no serious demands for the augmentation of the veterinary staff from any of these Colonies ?—No.

506. Take the case of Ceylon. In Ceylon you have one veterinary surgeon with a salary of 375*l.* to 525*l.* Do you know whether you have had any representations as to Ceylon ?—We have not received any in the last three or four years, so far as I am aware.

507. Would the livestock interests of Ceylon be very considerable ?—I could not say, without reference to the Ceylon Department, what they are.

508. It does occur to me that in some of these cases the staff of veterinary surgeons employed is extremely small in proportion to what I should conceive to be the potentialities of their usefulness; but I take it you necessarily leave to the Governor of the Colony the duty of taking the initiative in the matter ?—Exactly.

509. (*Mr. Read.*) He has his Council, and the Council represent the local interests, and one assumes that if a larger veterinary staff is required the Council would naturally press for it ?—Yes.

(*Sir T. Holderness.*) Besides, they have to pay for it.

(*Mr. Read.*) They have.

510. (*Chairman.*) There have been no demands of that kind lately—I mean for new posts ?—In the last year we have had recommendations for an increase of staff from the East Africa Protectorate and the Federated Malay Straits, and in both cases the increase has been approved.

511. (*Sir Thomas Elliott.*) There would be no means, of course, of challenging any want of initiative on the part of the Governor of the Colony ?—No, but I have no reason to suppose that the Governor would be backward in recommending any increase that he thought was necessary.

512. I am not quite sure that in every case the Governor would realise the possibility of dealing with disease and the questions relating to breeding by means of scientific assistance ?—If the stock industry were an important one in the Colony I think that the stock interests would find means to bring their point of view to the notice of the Governor.

513. Yes, I think that is probable. In the case of Ceylon—which catches my eye—do you know how long the veterinary surgeon with a salary of 375*l.* to 525*l.* has been there ?—I could not say, without reference to the papers in the Department.

Sir John McFadyean, M.B., B.Sc., M.R.C.V.S., called and examined.

514. (*Chairman.*) You are the Principal and Dean of the Royal Veterinary College, London ?—Yes.

515. How long have you occupied that position ?—Twenty years.

516. You are also a Bachelor of Medicine and a Bachelor of Science—of which university ?—Of Edinburgh University.

517. With regard to the numbers entering the veterinary profession each year, do you know the actual numbers at present ?—Yes. I can give you, I think, reliable figures for a considerable number of years, and I should like to do so, and if desired, I can suggest reasons for the very considerable variations in the number of candidates.

518. From year to year ?—From year to year. I believe that representatives are coming from the Royal College of Veterinary Surgeons. I am a member of the Council of that body, and I know they have been invited to send witnesses here, and I know that they are prepared to give very complete figures; but I have certain figures which I got out for my own purpose to support my own argument, and I should like to give these. I have the figures commencing in 1875. In that year there were 73 candidates who obtained the diploma, and whose names were added to the register. The figures for the following years were as follows: 71, 76, 98, 66, 65, 88, 102, 105, 84, 114, 144, 97, 130, 148, 139. Then we come to the year 1890: 125, 122, 132, 142, 154, 152. That brings us to 1896, and they begin to drop: 118, 101, 102, 92, 78.

519. Which was the maximum year ?—The maximum year was 1895. Missing a few years, because they do not teach anything of importance, but taking the last five years commencing with 1907, the new numbers added were 81, 85, 92, 93, and 72 last year. That is the lowest number added to the register since 1879, in which year 65 new members were added.

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520. Do you think, from your experience, with regard to such numbers as are now coming through, that there is an adequate supply of men for the veterinary profession ?—Scarcely, but the deficiency is comparatively small.

521. Roughly speaking, how many per annum added to the profession do you say there would be room for ? —One has to consider the existing register. The question is whether, at present, there is a sufficient number of veterinary surgeons to supply the needs of the country and of the various colonies, including the self-governing states. My impression is that there is a sufficient number. I find that the average wastage of the register during the last five years is 90.

522. So that really, if you kept up the present number of 70, there would soon be a shortage ?—Yes, but it was only last year that it was 72. The average for the last five years is 85, so that we want about 10 more annually; that would probably do it.

523. At present it has not become pressing because of the rich years when you had 150 and so on, which were excessive ?—Yes, it is not pressing, but still it is of considerable importance that there has been such a falling off as this; even a shortage of 18 in a year is rather serious.

524. I suppose you are applied to from time to time from various branches of the public service to recommend men in your personal opinion ?—Frequently.

525. You know the kind of post you are asked to recommend for. Do you experience any difficulty in

finding the right type of man?—Yes, I have constant difficulty; but that is because I adopt a high standard. I can always fill up the vacancies naturally, because the quality of the applicants depends almost entirely upon the salary that is offered—so that the different Colonies who require candidates are not likely to know of the shortage as well as I do. The chances are they will always get somebody, but within my knowledge they often take men whom I consider unfit for the responsibilities attached to the places they are going to.

526. Is the reason of non-application that the men do not exist, or that the salary is not enough to tempt them?—As I have tried to explain in my précis, one has to consider first whether there is a sufficient number of men passing to maintain the register. Even when there is, there might be a shortage of candidates for public appointments, because men might prefer private practice as believing that it held out a greater prospect of their making a good living, and I believe that to be the case. So that there is primarily a sort of competition between private practice on the one hand and all the different public services grouped together on the other hand; and unless the pay and other conditions attached to the different public services were very greatly improved, I think it is likely there will never be more than a minority of recent graduates who hold themselves open to take a public appointment at all. They come to the college with the intention of going into general practice, and they adhere to that. And then, within the different public services themselves, there is a competition. Some are more attractive than others, principally on account of the terms of pay and pension.

527. (*Sir Thomas Elliott.*) Is the competition purely on the basis of pay?—Not purely, because the nature of the work and other things like that has to be taken into consideration; but pay and pension are, I think, no doubt the main things. Take, for instance, the Army Veterinary Department and the Indian Civil Veterinary Department. These compete with one another for candidates, and I am afraid it is a fact that the best candidates are most likely to select the Army Veterinary Department, although there is not a very great deal of difference in the pay or pension. There is this very great difference, however, that the veterinary surgeons in the Indian Civil Department are permanently stationed in India, whereas the officers of the Army Veterinary Service only spend comparatively short periods—I think about five years at a time—in India, and then they come home. Not only that, but the number of men in the Indian Civil Veterinary Department is comparatively small, and I do not think there is the same possibility of relieving an officer when he is not feeling well.

528. (*Chairman.*) Do you find that your people as a rule prefer the Army Veterinary Department?—Yes, I am trying to show why it is that they do prefer it.

529. (*Sir T. Holderness.*) After the Army Service comes the Indian Civil Veterinary Department, does it?—I would not like to say that it is the next most popular, as it is very difficult to decide in a matter of that sort; but, as between these two, I am quite satisfied that men prefer the Army Veterinary Service.

530. (*Chairman.*) Supposing you have got a post like the position of pathologist in Nyassaland, where administrative work and, probably, difficult research problems have to be dealt with, do you find that, for a post of that kind, or for a post in the East Africa Protectorate, you would have difficulty in finding a suitable man?—Great difficulty; but that is a case almost by itself. The difficulty is the same, but it is greater than in the case of a similar medical appointment. The medical profession contains 10 times as many members as the veterinary profession, but I know myself that if you want to put your hand on somebody who is really competent to conduct an investigation and go to a Colony, you have some considerable difficulty in getting the man.

531. He is quite isolated and requires a lot of initiative?—Yes, and the training and experience required to make a man a competent pathologist and investigator are quite special. You cannot expect to find in the country half a dozen men who have been training in that way when the betting might be heavily against them ever having a chance of such an appointment at all.

532. At about what age do your men usually come to you?—We have a downward limit of 17.

533. For admission?—Yes.

534. And then what do they pass—an entrance examination?—We have at present the preliminary medical examination—we have practically the schedule approved by the General Medical Council.

535. The standard has been slightly raised, has it not?—The standard has been very much raised. I do not know whether you would allow me now to endeavour to explain why there was the extraordinary falling off in the number of candidates disclosed in the figures which I mentioned. It will be observed that the register was growing very rapidly during the 20 years 1881 to 1900. During that period no fewer than 2,379 names were added to the register. There was an average addition of 118 annually, and if that had gone on there would have been quite a decided superfluity of veterinary surgeons in the country, far more than were required; it was, therefore, resolved by the Council of the Royal College of Veterinary Surgeons, that being the body that has to do with determining the length of the period of study and conducting the examinations—that the time had now come for increasing the severity of the entrance examination, and for demanding that the schools should give a more complete education in the professional subjects. They therefore added a year to the curriculum. Up to 1895 it had been a three years' curriculum. They then added a fourth year, and also adopted the preliminary examination required of medical students about the same time. That is what explains the drop—because in the year 1895, the year in which these regulations came into force, the number actually added to the register was 152. Then it falls gradually, but that does not disclose the immediate effect, because, of course, there were two years' students already in the colleges waiting for the final examination in 1895, and these are the men that keep the numbers up to 118 in the next year, and then they fall to 101 and 102 in the succeeding years. There is no manner of doubt that it was this that accounted for the falling off in the number of students entering the schools at that time.

536. As regards those two causes—take first the entrance examination—you would not suggest going back on that?—No, not on any account.

537. The schools are improving in their quality, so that the number that would pass with a good entrance examination is largely increasing?—No, the numbers are falling off.

538. I mean the schools have so much improved that, where at one time you would have had one candidate who had passed the London matriculation, you would now have 20?—I suppose that is so. I have rather a poor opinion of the general educational standard in England. I am surprised to find how comparatively badly educated the sons of people in ordinary good positions are at the age of 17 or 18.

539. You would not suggest, therefore, shortening the period of four years?—No, that would be like putting back the hands of the clock.

540. And as regards practical politics, it would be undesirable to lengthen it?—I am not sure that it would be desirable, even if it were possible.

541. Under all conditions you are of opinion, as at present advised, that four years is the right time?—Yes.

542. Do you have any people coming to you who have graduated already at a University just as they go to the London hospitals from Cambridge, we will say?—Yes; we have a few, but very few, the reason being, of course, that life is too short to enable a man to spend eight or nine years in getting into a profession, especially one that brings in such a small remuneration as the veterinary profession.

543. Would you tell us quite shortly what your curriculum is during the four years?—During the first year the students study chemistry, biology, and a portion of veterinary anatomy, osteology.

544. Do you take physics at all ?—Yes, elementary physics and chemistry and biology, and this part of anatomy.

545. Can you compare, roughly speaking, the standard of the examination for that course with the London University first examination for the M.D. ?—As a matter of fact, we are recognised as training students for the B.Sc. of London University in these subjects, in science and biology.

546. Up to the intermediate stage ?—Yes, and in fact those of our students who are preparing for the London University examinations sit in the same classes and take the same courses.

547. You have some taking the London degree ?—Yes, but the ordinary courses have to be supplemented a little in order to satisfy the requirements of the London University.

548. On the other hand, your first year takes in certain things they do not have, namely, osteology ?—Yes; that does not come into that examination, but it comes into the subsequent one for the London University.

549. Some of your men take the regular Bachelor of Science of London ?—Yes; it is a special degree in science instituted about eight years ago, I think, to meet the requirements of veterinary students.

550. Do you ever excuse any part of the four years' course ?—No; under the regulations of the Royal College of Veterinary Surgeons every candidate for their diploma must spend four years in professional study.

551. If a man has been already up to the intermediate standard, is it not rather hard to put him back again to take up his chemistry again, for example ?—Yes; I think it would be perfectly reasonable to exempt him from studying chemistry and biology again.

552. To exempt him practically from the first year ?—Yes; but one has to remember that in the first year the student is instructed in other things besides the subjects I mentioned—that is to say, we begin his clinical education during his first year.

553. What do you take in the second year ?—Anatomy and physiology.

554. And then ?—In the third year materia medica, pharmacy, hygiene, pathology and bacteriology.

555. Might not it lead to getting some men of rather good class into your college if it was regularly recognised that the course might be cut down to a three years' course in the case of those who had taken the science degree of London or some other University ?—I am not quite sure what is meant by a good class of men.

556. You have had some men who have already taken their degree, and they have had to face a four years' course ?—Very few.

557. Supposing that, instead of having to face a four years' course they only had to face a three years' course, might that not lead to your getting men of rather good class into the college ?—We have had some, but at present we have none.

558. To take the case of a man of 18 or 19 who has the London degree already in science, or some degree, and then comes on to you, and you let him off a year, would not that have a good result as regards the class of man coming to the college ?—I think probably it would. In some cases it would give us a good type of man, but I am not prepared to admit that the students who go in for science in this country generally are a superior type to the men we get at the Veterinary College.

559. I am not putting that. I am putting to you whether you might not have another slightly different type, I will not say superior, but a useful type ?—This is a case, I suppose, in which it would mean that extra knowledge would be useful. I strongly believe that you can scarcely overeducate a veterinary surgeon or a medical man, but you have to consider whether there is the least likelihood that any clever youth—and it is only clever ones that one would want—who has already completed a University course, and taken a University degree, would be tempted to spend at least another three years in getting a veterinary qualification.

560. He would want some temptation in order to induce him to do it ?—Yes; and in order to induce any considerable numbers it would need to be a strong temptation, in my opinion.

561. (*Sir T. Holderness.*) It would add to the age, would it not ?—Yes, it would add to the age; it would probably mean that candidates would not get their veterinary diploma until 25 or 26.

562. (*Chairman.*) Could you reduce the time for such men below three years ?—No; I think that would produce bad men, even for the purpose which you have in view.

563. Supposing the man had been for three years doing chemistry and physics, and possibly some physiology, at a University college, could not you reduce the time for such a man below three years ?—That could not be done without serious detriment to the state of his knowledge when he presented himself for the final examination.

564. So far as general science is concerned, he would be like the B.Sc. candidate ?—Yes, like the B.Sc. candidate we are now passing at the Veterinary College.

565. (*Sir T. Holderness.*) Would you give the same concession to the man who is not a graduate but a man who has taken the intermediate examination ?—Yes, I think they ought to do that, but with regard to giving any further concession, might I say this: I have often heard it urged that a medical man ought to have a greater concession, say the second year as well as the first. He has studied physiology and he has studied anatomy, but the fact is, it is not a general knowledge of anatomy, but a special and particular knowledge, and of the cow and the horse and not of men, that is required.

566. (*Chairman.*) It is quite impossible to supersede any part of your second year by any general training in the best science college ?—Yes, quite impossible; he could not be allowed off the second year of study and the second examination.

567. But you might cut off a year in favour of those who had got up to anything equivalent to the intermediate standard of the London University ?—Yes, I should be in favour of that; that would make the curriculum of the science graduate three years instead of four.

568. (*Sir T. Holderness.*) The intermediate takes two years, does he not ?—No, he takes one.

(*Sir T. Holderness.*) It would give another avenue, it seems to me.

569. (*Chairman.*) Yes, and also a man need not select quite so young ?—Very few of our candidates come at 17—that is the minimum. The average age of entry has been declining and at the present time they are mostly about 18.

570. Seventeen is your minimum ?—Yes.

571. Going from that to another point, what would you think in your experience is the sort of desirable size of a veterinary college—I mean you may have a place that is too small for good practical work, and you may have a place that is too large. If you had an ideal college in your view, how many students do you think should be dealt with in one college ?—That is if one had to absolutely put aside the advantage of students as fee-payers ?

572. Yes ?—Putting that aside, I should think 200 would be about the right size.

573. For convenient and satisfactory working ?—Yes, that gives classes in a four years' curriculum of 40 to 50.

574. Do you know how far any of the veterinary colleges have State support of any kind; do you get a Board of Education grant ?—No, we get a grant from the Board of Agriculture—at present we get 1,300*l*. a year.

575. A block grant is that ?—Yes.

576. Not a capitation grant ?—No, we have no capitation grant.

577. You do not get any grant from the Board of Education ?—No, we are debarred from applying for that, as I understand.

578. Perhaps you have got something better?—No, I am inclined to think that we are considerably worse off.

579. Do you know whether the other colleges receive anything?—Yes; two veterinary colleges in Scotland receive grants, one in Edinburgh and one in Glasgow. I know they are getting grants from the Scottish Board of Education.

580. About what proportion of your men go on and get their diploma?—Ninety per cent.

581. That is a very high average; that is allowing for illnesses and death?—Yes, I should think, allowing for everything, nine men out of ten qualify.

582. Do they usually get their diploma within the four years?—No, not more than half of them, I should say, go through in the minimum period allowed—four years. That is obvious when one considers the necessary rejections. Our passes all over this last year I think were about 70 per cent.

583. On one examination or other there is liable to be half a year or a year's delay?—Yes, each rejection prolongs the student's period of attendance for half a year.

584. Is your post-graduate course a fixed thing—how long is that?—Our post-graduate course was begun in 1904.

585. What does it consist of—how many months' study?—It is a two months' course—an all-day course for two months.

586. Do you find a good number of the students stay for it?—Since I sent in my précis I got out the actual figures, and I find that since 1904 up to the end of last year 314 students have passed through post-graduate courses, or an average of nearly 40 per annum.

587. Do you find that assists them afterwards in getting appointments?—Oh, yes. My belief is that some importance is attached to the fact that the student has had this course—and some students attend it with that object—but a great many attend it who have no object in view at all except to get further knowledge.

588. To become more competent?—Yes.

589. Have you had any of your students go on after taking their complete course in your college to do advance research work as research follows in Edinburgh, Liverpool, Manchester, London, or Cambridge, or wherever it may be?—There are no research fellowships open to them—or there were none until quite recently. Now, under the development grant, there are a few research fellowships.

590. I was thinking of the cases of going voluntarily, perhaps without payment of fees, to do more advanced work?—No, I have never heard of it, or any opportunity to do such a thing—and they would not be likely to go to a medical school for the purpose, because, naturally, they would probably desire to carry out researches about important diseases of farm animals, and one rarely finds facilities for that at a medical school.

591. I was thinking of places like the Tropical Diseases School at Liverpool—you have not had that?—No.

592. (*Sir Thomas Elliott.*) I take it that the object of the institution of the post-graduate course was to supplement the ordinary education required for the diploma, and especially to qualify men either for teaching work or for work in the different public departments?—Yes, it was entirely with that object.

593. There was a feeling that the ordinary curriculum leading to the diploma was not in itself sufficient for those purposes?—Yes, and it was really obvious that the teaching given under the ordinary four years' curriculum could not train men properly for the responsibilities that attached to public veterinary appointments.

594. No one has had more opportunities of judging than you have. Would you be of opinion that even now with the post-graduate course there is considerable room for the extension of the education of men who are going either to fill public appointments or teaching appointments?—Yes, I think there is, and the fact that so many students have passed through these courses shows that there is also a demand.

595. At present it requires a considerable amount of sacrifice on the part of the students, does it not?—Yes, it does, and what impresses me more is that it requires a great deal of sacrifice on the part of those who teach, because these post-graduate courses do not pay. I am not sure that the fact that we conduct them is taken into consideration at all in any grant. In this matter I think post-graduate teaching in veterinary subjects is at present on a different footing from post-graduate teaching in medical subjects. I believe grants can be obtained for post-graduate medical teaching, and the teaching of tropical diseases to medical students is to a very large extent subsidised at present. I speak about this rather seriously because, I think it is quite possible that these courses, if they are not further supported, will be discontinued absolutely.

596. (*Chairman.*) We have to consider not merely the cost to the student, and his maintenance after he has got his diploma, but also the cost to the institution of providing this highly specialised study?—Yes.

597. (*Sir Thomas Elliott.*) In other words the fees paid by the students are not sufficient to repay the college for the outlay?—They are not sufficient.

598. And therefore we must not consider the cost of the post-graduate courses as being represented by the fees paid by the students?—No.

599. (*Chairman.*) In fact, where the fees at the earlier stages may merely pay the cost of instruction, the more advanced the work the less near they are to paying the cost of instruction?—The fees can never pay for an adequate education, even during the curriculum laid down for the diploma.

600. The discrepancy gets bigger when you get to the more advanced work?—Yes. The number of students to be trained in the five schools is after all very small, and a respectable veterinary education cannot be self-supporting:

601. (*Mr. Read.*) That is the experience at the Liverpool School of Tropical Medicine; they have been subsidised by the State?—Yes. Of course, post-graduate teaching ought to be more expensive because while one can employ men of no great experience to train students for diploma examinations, that is not possible in post-graduate teaching; you must have a man of experience and a person who can speak with authority on the subject he is teaching, otherwise the students will not listen to him.

602. (*Chairman.*) The appliances and the materials also cost more?—Yes, that is a considerable expense to the Royal Veterinary College to maintain various parasites such as trypanosomes—to keep them running in animals there constantly from year to year—so that one may be able to demonstrate them to students going out to the colonies.

603. Is it possible for a large number of schools by being reasonably economical with a small number of students to carry on any prolonged post-graduate work, or would it be better for there to be a passage from the veterinary school to some other institution?—That is rather a delicate subject to express an opinion upon.

604. Do not answer it if you would rather not?—But I have never held any other opinion than that veterinary education in this country has been seriously retarded by the fact that there are too many schools, and that there are too many because it has been supposed that money could be made by running a veterinary college or school; I am not sure that it has yet been generally realised that that is absolutely a fallacy. The total number of students required to supply the country with veterinary surgeons is only about 400, I suppose, altogether; when you divide that 400 up among the five schools, it gives them an average of 80 students each, and supposing you charge them even 20 guineas per annum, that does not provide you with anything like enough money to remunerate a respectable staff. And it has further to be taken into account that very likely the number of students will not be equally distributed over the five schools. At some of them there

would be a large number of students, and at others there would be very few.

605. (*Sir T. Holderness.*) I suppose that is the case at present?—That is the case at present. With regard to the question whether it would be advisable to encourage the post-graduate training of veterinary students in a number of different places or not, that resolves itself largely into this question: whether the State would be prepared more or less to waste money on that object, because whether one has to have five students or 25 in a post-graduate course, the equipment has to be the same, and the instruction has to be the same. I think it is very likely that each of the veterinary schools now in existence would like to conduct post-graduate teaching if it is to be State-supported.

606. Is post-graduate teaching carried on in your college alone at present?—I believe that within the last year or two some students have had post-graduate training in Dublin, and there was some post-graduate training given in Liverpool for a number of years. Whether that is still continued or not I am unable to say.

607. (*Chairman.*) Is your veterinary college connected with the London University at all?—Only that six members of the staff are recognised teachers of the University.

608. In Liverpool, the Veterinary College there is part of the University, is it not?—I am not sure what the relationship is; it is a school of the University.

609. And you do not know whether any of their men go on after taking their veterinary diploma from the Royal College to a special line of research work in any of the departments?—They have very few students who take the diploma. I think that probably the best plan would be if post-graduate instruction is to be State-supported that a reasonable or handsome capitation grant should be given.

610. To the institution?—To the institution, but even then care would have to be taken that the teaching was really of the grade required.

611. (*Mr. Read.*) What sort of capitation fee do you think would be reasonable. Would it be 40*l.* or 50*l.* in the case of our colonial men?—I think probably there will not be more than 30 men requiring post-graduate training annually.

612. (*Sir T. Holderness.*) In the whole country at any one time?—Per annum, and I think that they ought always to be asked to pay a moderate fee. At present they pay 10 guineas.

613. (*Chairman.*) For the two months?—For the two months.

614. How long ought the post-graduate course to be to qualify men for the higher work?—I have been thinking only of the one subject—my own; but I think there ought to be instituted a post-graduate diploma, or qualification, the examinations for which would embrace other subjects than pathology and bacteriology, and it ought to embrace particularly public veterinary hygiene, and inspection of meat and milk, and so on, and the student would require post-graduate training in these also.

615. Have you attempted to do that with the post-graduate diplomas that now exist?—Yes. I am acquainted with the regulations at both Liverpool and Manchester; I was external examiner in pathology in Manchester for several years.

616. As regards the post-graduate diploma, are Liverpool and Manchester the same?—Yes, they are practically on the same level.

617. With regard to the range of work there, do those two post-graduate diplomas cover the sort of range of work that you were alluding to a moment ago?—That again is rather a delicate question.

618. Just take one point like bacteriology. Is not the scientific way of dealing with that the same whether you are dealing with animals or men?—Quite—or nearly quite. But might I remark here again that what the practitioner—the man who is going to practise a profession in any shape or form—wants to know is not the generalities but the particularities. The method of investigating glanders and plague in man are very much the same, but the pathology of plague is, of course, absolutely different from the pathology of glanders, and however completely a bacteriologist may have at his fingers' ends a knowledge of human diseases he is not in a position to teach veterinary men who want post-graduate instruction in bacteriology; he is as incompetent as I should be to step into a chair of human bacteriology.

619. What I do not quite follow, speaking of bacteriology and not pathology, is that one does not see why it is not the same whether you are dealing with the human being or with the animal?—The reason is the diseases are absolutely different, except in a few cases such as tuberculosis, which affect men and animals, but the important facts with regard to the occurrence of tuberculosis in cattle are quite different from those relating to tuberculosis in men.

620. Take a question like milk and similar questions which the Public Health Officer has to deal with. Does not the veterinary man have to deal with those too?—Certainly, if you take any particular instance such as that. Take for instance the diagnosis of tuberculosis as affecting the cow's udder. Of course, that is the same whether the medical man deals with it or the veterinary man, but I hold that that is a veterinary question.

621. Are not such investigations rather difficult at times?—They are among the quite simplest problems of bacteriology.

622. Does a man not require any special training to deal with them?—I venture to say that the students in the ordinary curriculum get instruction almost sufficient to enable them to deal with that, but, of course, they lack the experience.

623. And to detect the traces of disease in milk?—I was just thinking about this one question of tuberculosis, but, of course, the question of the propagation of disease through milk embraces subjects that are not veterinary at all, because there are diseases such as diphtheria and typhoid and so on, which are supposed to be conveyed through the medium of milk but not from the cow.

624. That is the business of the Public Health Officer?—Yes, the Medical Officer of Health.

625. (*Sir T. Holderness.*) I suppose this post-graduate course which you contemplate is a practical course to fit a man for practical work?—Yes, as practical as you can make it.

626. With special reference to the man's own profession?—With special reference to the man's own profession.

627. That is rather different, is it not, from a more protracted course which an investigator might have to take?—Yes, that is a totally different thing.

628. For instance, you will perhaps remember Major Holmes. We consulted you when he came home as to his training, and I think you recommended that he should go to Cambridge, and he went there—but that is a totally different thing from this, is it not?—Yes, totally different. I am not considering how you would train bacteriologists or pathologists who are capable of filling chairs and are capable of conducting serious investigations.

629. (*Sir Thomas Elliott.*) That is one of the points on which I should like to have your view. I was about to ask you whether you could sketch out for us, leaving entirely aside any question of money which is apt to warp one's consideration, what would be your ideal training, say, for a man who is going to occupy a high teaching post in his profession, or a high administrative position, or a high research position.

630. (*Sir T. Holderness.*) Perhaps we may first take it that this post-graduate course of Veterinary State Medicine that you are contemplating would be the course for all men entering the public service?—Exactly.

631. That would be the minimum qualification, and you distinguish that from the more advanced course?—Yes.

632. (*Sir Thomas Elliott.*) We should all of us agree that the post-graduate course represents a minimum of utility. But I want to get your ideals apart from any question of money. How would you select your men and how would you train your men?—I will deal

with the second part of your question first because it is the easiest, as to how I should train them. I should put them to be trained by some person who is actually engaged in research; I do not think you can train a student in research except by allowing him to participate in it.

633. You are beginning a little late. I take it that such a man as that in your judgment would first of all go through the four years' curriculum ?—Yes.

634. He would then show a certain capacity for research work, and you are going to train him for research work ?—I was supposing that he had probably gone through the post-graduate training we had been speaking about before, and then after that comes the question of his continued training so as to fit him for research work. I would like to observe about that, that in my opinion there is not one man in 10, or perhaps one in 20, who is capable of being trained for research. You might waste a mint of money in attempting to train a great many people and find that they were of no use, but if a man has got the natural gift for research, assuming that he has had this post-graduate instruction, he does not require a very great deal of further training to enable him to begin reseaarch, and I think that the best method of perfecting his powers of research would be to allow him to work under someone who is actually conducting research.

635. In a well-equipped laboratory ?—In a well-equipped laboratory, assuming that expense was no object.

636. (*Chairman.*) Will you just give us an example, following that out, of the kind of thing you mean, either in the past or the present it does not matter which ?—I expect the Committee will be amused if I say that I think we now have at the Royal Veterinary College excellent means for training students in research this year and last year for the first time, because we have from the Development Funds a handsome grant to enable us to conduct important investigations, and I am myself spending most of my time now in research work, and associated with me are four other veterinary graduates, and I think I am giving them a very good training in research. They vary in experience, and of course when they come in at first the man is put to do comparatively elementary things. He has to lend a hand in section cutting and staining, and the preparation of culture media, and as he gets a little more experience he is put on to something more important—he is allowed to make a post-mortem examination, including microscopic examination, and write out the result in what he conceives to be proper form. It is in that way, given a natural gift for research, and in that way only, that you can train men who are intended for the investigation of animal diseases. Here again I believe they must be trained by people who have an expert knowledge of animal diseases, if such people can be found. It would not be in my view a good training to put these men under medical experts who look at everything from the human point of view.

637. (*Sir Thomas Elliott.*) I rather gather from your previous replies that, from the point of view of research, you would say that we are likely to get both the quantity and quality of men that we want by selection from amongst those who have taken the ordinary curriculum for a diploma, who have taken the post-graduate course, and are then placed in a laboratory under a competent researcher in order to do first of all the mere humdrum work, and, subsequently, according to ability, the higher research work ?—Yes, I think that is the right plan, and one should remember that, while a very considerable number of men are required to recruit the public services annually, there will never be very many research appointments.

638. I was coming to the other class of appointments. That I think gives us quite a clear idea of your view so far as research work is concerned. Now take the veterinary teachers in the country. What training do you think would ensure an adequate supply of efficient and competent teachers of the various branches of the veterinary art ?—I am not sure that there is any method by which you could ensure that. It will always remain a very great difficulty because the veterinary profession is a small one, and therefore one cannot expect that at any given moment you will have many men studying specially, say veterinary pathology or veterinary physiology. The prospect of reward is so small that a man is generally induced to specialise in some other direction, but I think that, probably, if veterinary chairs and lectureships were better paid than they are, and the staffs were perhaps somewhat enlarged, that one would be able to get properly qualified men by recruiting from the bottom, that is to say, general members of the staff would gain experience and get more important and better paid appointments either in the same college or in a different one. That is why I think it would not be a good thing if one had only one veterinary college or only two veterinary colleges in this country.

639. You would require those men who are going to offer themselves for teaching appointments to take the post-graduate course, of course ?—I do not know that I should lay that down as a stipulation.

640. (*Sir T. Holderness.*) Perhaps you could tell us how you select your own teachers ?—Yes, I was just going to do so. When an important appointment becomes vacant it is advertised, and the various qualifications of the candidates are carefully considered and the man selected who is believed to be the best for the post, giving weight not only to what the man may have done in the way of research, but to his capacity for teaching, because, after all, the principal thing that the members of the staff have got to do in veterinary colleges is to teach the students and enable them to pass their examinations.

641. (*Sir Thomas Elliott.*) Are you satisfied that in the future—I will not speak of the past—we shall get competent men to present themselves in sufficient numbers in order to train the future veterinary surgeons of the country by means simply of the ordinary curriculum for a diploma ?—I am not quite sure that I follow.

642. I want to know whether you are satisfied with the outlook as regards the ability to recruit the teaching staffs of the veterinary colleges ?—I am not satisfied with it. I think that in that as in pretty well everything else, you get just what you pay for, and if veterinary teaching appointments all had good salaries attached to them, you would get a better class of teacher, perhaps not immediately, but gradually you would, because young men would lay themselves out for special work which they recognised would give them a good chance in competition for a teaching appointment.

643. (*Chairman.*) To take your teachers of physics and biology, there you would want men who had been through, with honours, some advanced course in a university ?—I was not considering that case at all; I was only thinking of the veterinary men.

644. Of the professional men ?—Yes. With regard to the others there is never any difficulty in getting them—I mean the biologist and the chemist; one can always get plenty of those.

645. (*Sir Thomas Elliott.*) Are you not rather exaggerating the influence of pay upon a man's choice of a profession ?—I do not know. I think it very likely is a fact that many other things than the estimated income determine whether a youth adopts a profession or not, but I was thinking of when he was in the profession. I think the possible income is a factor to which great weight is generally attached.

646. Leaving out those monetary considerations, which prevent us perhaps from seeing so clearly as we might otherwise do, I do not think you contemplate any special system of training in order to fill the teaching profession of the future ?—No, I find it very difficult to suggest any training to provide teachers. I cannot suggest what sort of a course one would organise to train veterinary teachers as a class of teachers. If a Chair of Veterinary Physiology falls vacant, then I should say it would be filled in the same way as vacancies in medical schools are filled up, simply by trying to get a veterinary physiologist from another school, and perhaps a school that was not paying quite so much salary, and that would mean that they would have to employ a junior teacher to take the subject.

Exactly the same thing applies to filling up medical appointments; you must take the most eminent man that is available when the vacancy arises.

647. The post-graduate course is mainly designed, I understand, for men who are going to fill public appointments?—Yes, it is largely attended by students who have obtained the diploma a few years before, or a year before, and who wish to apply for any public appointment, but it is also attended by officers of the Army Veterinary Service. A number of these attend each course—there are five attending the present course, and it is attended by men who have been holding public appointments abroad or in the colonies. Some of them may have been abroad for a considerable number of years and they want to have their knowledge, so to speak, rubbed up.

648. (*Sir T. Holderness.*) I think in the case of our Indian men, although they have already taken a course they come back again?—Yes.

649. (*Sir Thomas Elliott.*) I think you are of opinion that the post-graduate course might be extended with advantage?—Yes.

650. How long does it run now?—It runs for eight weeks, but it is an all-day course—ten to four with an interval of an hour for luncheon. I would suggest that the work that is done in that course should be spread over a longer period—certainly a month more at any rate, because it is too hurried at the present time—and then I think the course should take in things that I am not able to deal with at all, especially connected with veterinary hygiene.

651. I rather gather that in all these branches of work your own impression is that training and instruction in a purely veterinary atmosphere is sufficient?—I was not thinking anything about the atmosphere really. What I meant to convey was that the knowledge which is still necessary after graduating on the part of a man who is going abroad to a veterinary appointment, or even who is going into the service of the Board of Agriculture or the Army Veterinary Service—the further knowledge which is required is veterinary knowledge. But it is very special veterinary knowledge that he requires, and you cannot allow the man to have, in place of that, post-graduate medical instruction.

652. (*Chairman.*) To take one point that has been put to us, it has been said by Professor Mettam that the great thing is to ground a man in the methods and principles of research, and that he can then apply those methods and principles as occasion arises. What is your view with regard to that?—That contains an extraordinary misconception. Take for instance a member of the Indian Civil Veterinary Service who has been taught the general principles—although I confess I have very great difficulty in understanding in reference to my own subject exactly what is meant by teaching general principles—but I will assume that he has not been taught the particularities——

653. Let us take the more intelligible word "methods"?—I will assume that he has been taught the methods—although I do not see how he can be taught that except in working with the particular diseases. My point is, he had better be taught those methods working with animal diseases rather than with diseases of man. Supposing a young man has been taught the methods applicable to the diseases of man, and he is planted out in the jungle in India, and a case of suspected rabies turns up, and it is his duty to give an opinion on it, how will general principles help him there? What he wants to know is all that is known regarding the methods of diagnosing rabies in a dog alive or dead, and although he might be the greatest medical expert in the world, if he had not given special attention to rabies his services on that occasion would be absolutely useless. His general principles would not help him one little bit, because there are known methods of diagnosis, known methods of research, that will conduct you to an absolutely certain diagnosis in the case of rabies. A man would probably not arrive at it in 10 years by sitting down and trying to evolve it from general principles; whereas, if he is properly taught, he knows it at once.

654. Supposing he has learnt all about the cultures and knows what to look at, and a new disease arises, is not he just as well equipped?—I wonder where the man is who pretends to teach the bacteriology and pathology of men and of all the domestic animals. He would be a very great pretender if he did so—but I do not know of any. The most that is contended by a medical man in this connection is, if he will allow veterinary students to work at human diseases under his direction, that that will be a training for them which will be useful in veterinary practice. As regards the knowledge required by those who are to fill up public appointments I hold that to be an absolutely false view. It is perhaps not quite so false with regard to the training of those who are to engage in research, because, as I have said, one has to begin at the beginning with the man who is to become a researcher, and you have to teach him simple laboratory methods, but that is the A B C of the thing. After that he must be allowed to take a hand in actual investigation, and I say there is an obvious advantage in allowing him to try his hand at veterinary research.

655. (*Sir Thomas Elliott.*) Do you think a system which practically limits the members of the veterinary profession to boys who come from a secondary school and then receive all their scientific instruction in a veterinary college, secures for the profession a fair share of the best brains in the country?—I really do not know. I think that among the 150 students who come to us the average mental ability is just as good as in any other 150 you would take at random in say the medical profession. It is absolutely as good, but it is a small profession, and that is the reason why you cannot expect to have in it many men of genius or special standing, but there is no other reason I can see why you should not have average mental ability as good in the men because they have been trained in a veterinary college.

656. There is no arrangement by which you secure men who at any stage of their career have had the advantage of university training?—What is the the advantage of university training? Do you mean universities such as Oxford and Cambridge?

657. Let me correct my question, because I do not want to include assumptions in it. Under the existing system there is no means by which you can secure in the veterinary profession men who have been trained at a university?—No, I think that is absolutely excluded by the circumstances. Personally I should like to require that every candidate we have should take his degree in Arts at Oxford or Cambridge.

658. (*Chairman.*) Would you say anything to any other place like Edinburgh or Manchester?—No, but I should prefer Oxford or Cambridge, and I should teach him no science.

659. (*Sir T. Holderness.*) That is ideal?—That is absolutely ideal. I do not think it is good to begin to teach a general education by teaching a man medicine.

660. (*Chairman.*) Why not Edinburgh?—I feel that a course in Arts at Oxford or Cambridge is better—although I am a graduate of Edinburgh.

661. (*Major MacMunn.*) What, in your opinion, induces the lads to take up this veterinary profession? Is it hereditary, do you think?—It is extremely difficult to answer that question. Sometimes I suppose it is one thing and sometimes another, but probably no one is ever put into the veterinary profession unless either the boy himself or his parent has somehow had the practice of the profession brought under his notice, or he knows some member of it.

662. If it was a large public service with attractions and the attractions were sufficiently advertised would parents, in your view, think of having their sons prepared for it the same as they do for the Civil Service and for the Army and the Navy?—There are students who come to us with the intention of passing into the Army Veterinary Service. No doubt if it were known that there were about 400 public appointments altogether, some would come in with the intention of going into them. But a curious fact I might mention is, that within recent years a very large proportion of the students entering the London

Veterinary College are the sons of veterinary surgeons; this year 40 per cent. of them. That is rather interesting as showing that in the opinion of those veterinary surgeons the prospects are not bad. But I was going to say it certainly would be most desirable to give those who are entering the veterinary profession a university course beforehand. That, however, is ruled out because the prospects of the profession are not good enough to induce men to do that.

663. (*Sir Thomas Elliott.*) Might not men be able to make their own prospects, as it were, by their ability to render service to the public?—I am not sure. I think in one or two cases, but the demand would be very very small.

664. I rather wanted to get back and follow the train of thought I was on. I think you do recognise that it would be an advantage to the profession if it were in a position in one way or other in part to recruit the profession from men who have had a university training?—Yes, I think that a university course in Arts would probably be the best preliminary training. Next after that, a university course in Science would be the best.

665. (*Chairman.*) General in both cases?—General in both cases, nothing special.

666. (*Sir Thomas Elliott.*) Would you prefer that that general training should precede the specialised training at the college?—It is bound to, because the greatest genius could not do the two at once.

667. Instead of confining your entrance to the profession to boys or youths of 17 or 18 who have never received any higher education than that which they have received at a secondary school, would it be of service to the profession, and ultimately to the public for whom the profession exists, to endeavour to attract to the profession men of perhaps 21 or 22 who had taken their degree at a university, and were then willing by means of scholarships to receive special training for veterinary work? Would you be disposed to favour any arrangement by which such men could be attracted?—My answer to that is that I think the attempt to induce any considerable number of men of average ability to come into the veterinary profession in that way would fail. We do not exclude these men at present. We should welcome a B.Sc. as a student, and with regard to the question of scholarship, how much of a scholarship are you going to give him? Supposing you actually supported him during his three years, I do not think that would induce him to come into the veterinary profession. Supposing you offered that to a B.Sc., and said, "Will this induce you, with "all the advantages of being a veterinary surgeon, to "come into the profession?" you would get some Bachelors of Science to accept it, but, of course, you would only get the second-rate ones. Other things of more importance are open to the better men.

668. (*Chairman.*) As a matter of fact, are not the men who occupy the leading positions in the veterinary colleges university men?—The teachers?

669. In all cases the leading positions are held by university graduates, men having in addition the veterinary college education?—I do not know about the leading ones of those that teach Science—they have no veterinary qualification.

670. Some of them have both?—Yes.

671. (*Sir Thomas Elliott.*) As you are aware, we have had very much the same problem to solve in regard to agricultural science, and that by means of a system of scholarships we are attracting a number of graduates of an extremely promising character to train themselves in English and foreign laboratories, to become the *agronomes*, as the French say, the agricultural experts of the future. Do you not think that a system of the same kind would, if applied to the veterinary service of the future, attract equally good candidates? 150*l.* a year for two or three years enables a man to live comfortably after he leaves college, and he is quite willing to take the chance of finding a career for himself subsequently?—I think we are probably looking at it from different points of view. I suspect that what you have in mind is, that you would in that way attract into the profession men who had a better general education, but I am not in the least satisfied that you would in that way get men with better brains, and I think, after all, that what makes a man specially competent as a veterinary surgeon in any of these public appointments is the extent and minuteness of his knowledge regarding the diseases of animals. I think that that must be the first consideration, and I strongly hold the opinion that it is improvements in veterinary education at the end of the general career rather than before that would confer public benefit.

672. I rather gather from what you say with reference to Oxford and Cambridge and a degree in Arts, that you do attach a certain amount of value to what we may call a developed general education?—Yes, I attach great importance to that.

673. If you could build up the special instruction on the basis of a completed general education, there might, but not necessarily so, be a greater chance of your getting the men you want?—Yes, but I attach immense importance to natural ability. I think what is really conveyed by the fact that a young man is a B.Sc. of a certain university is often greatly exaggerated, and I am inclined to think very likely it would be a second-rate B.Sc. who would come into the veterinary profession.

674. You have a scholar at your college at the present moment?—We have two—Edwards is one and Minnet is the other.

675. Do you think money would be well spent in the selection and assistance of men from the college who are going to continue their research training?—I would hold out baits to induce the men with the best ability to train for the public service.

676. To those who enter the ranks of the veterinary profession through the present portal?—I think the bait must be held out mainly after the student has qualified.

677. (*Sir T. Holderness.*) You would not give it as an entrance scholarship?—That would be good in its way, too, but I think it would be far more important if we had the normal number of candidates passing, say 90. The best way of recruiting would be to hold out baits to induce men with the best mental capacity to train. The lines on which the present research scholarships are given are all right, in my opinion, and they require to be extended and continued.

678. In that case the scholarships are given after the men have completed their ordinary curriculum?—Yes.

679. (*Sir Thomas Elliott.*) Have you no misgivings as to whether the fact that you only get secondary school boys into the profession, speaking very generally, tends to a certain isolation on the part of the profession—tends to its not being regarded as an integral part of the whole scientific work of the country—which might be avoided if the student had been brought into contact in earlier days with men who are going to lead in other scientific professions?—I do not think you can alter things while the average income that can be made by a veterinary surgeon is what it is. Supposing you induce these university graduates to come into the profession, I doubt whether they would stay in it, and I doubt, unless they were actually misinformed with regard to the facts, whether you could induce them to subject themselves to a three years' curriculum.

680. (*Sir T. Holderness.*) You might get some, but you would not get the best?—That is so. In quite a number of instances we have had men who have had university degrees, and they have gone through the whole course, but I do not remember any of them that I should have picked out for research purposes.

681. (*Sir Thomas Elliott.*) I must press my analogy of the agricultural teacher. I do not think I should be wrong if I said that the prospects of a man entering the veterinary profession are not less than those of a man who aspires to be an agricultural teacher. Agricultural teachers are not paid any better than veterinary teachers?—Yes, on an average considerably more.

682. I should have thought not, but you are aware, are you not, that we do get candidates of an excellent type for agricultural scholarships?—I have not sufficient knowledge about that to be able to express an opinion.

683. I was wondering whether you had formed the view, notwithstanding that we get an excellent type

of candidate for the agricultural scholarship, that we are not likely to get the same type of man if scholarships were offered for the veterinary profession?—You are speaking now of the scholarships given to men who are going to engage in research?

684. Yes?—I was speaking about inducements that were to be offered to university candidates to come into the veterinary colleges and take the ordinary curriculum.

685. To take the ordinary curriculum with a view to their qualifying as veterinary surgeons, and subsequently to their engagement either in research or teaching work, or in the work of the public services?—That is quite different from the question of getting university graduates at present to take research scholarships in agriculture.

686. Do you think there would be any real difficulty in getting a fair number of quite competent young men who had completed their university course, whatever it might be, if you offered them scholarships which would enable them to enter the veterinary colleges and to qualify as veterinary surgeons, and then subsequently find themselves eligible either for teaching work or for research work, or for work in the public services?—You could not give them any guarantee as to what they would get after graduation. The bait would be free veterinary education for three years, and my firm belief is you would not get really good men. The class of men offering themselves for these scholarships of 150*l.* a year would not take a bursary or scholarship which merely meant three years' free education in a veterinary school. You would get very very few.

687. But still you would welcome some arrangement which brought the college and the profession into more continuous relationship with the general scientific life of the country?—Certainly I should.

688. Do you feel at the present moment that there is a certain isolation on the part of the veterinary profession which is undesirable in the public interest?—I do not feel the isolation at all. I hear people talk about it, but I do not understand what it means. We are all engaged as actively and earnestly as we can in teaching, and in adding to veterinary knowledge, and as regards myself I do not feel any isolation. I am in intimate touch, here in London, with men who are pursuing the same objects with regard to some different branch of education—medicine &c., and I think the isolation is largely imaginary.

689. If I may say so, in your case obviously you possess the general scientific qualifications, and, as we all know, personal qualifications of the highest possible order, but do you not think that it would be of a certain advantage if other men in the profession obtained general science degrees just as you yourself and some of the other leaders of the profession have done?—Yes, I think that the better a man's general education is, then, other things being equal, he will make, when finished, the better veterinary surgeon, or the better medical man. But with regard to the question of isolation I confess I do not know what it means. I do not think it applies to veterinary teachers in the Veterinary College in London, and then the question is, is it students who are supposed to be isolated? In a sense they are isolated, but so are the medical students in all the hospitals of London.

690. (*Chairman.*) There is a great advantage for them to be brought into association at that period of life with men following totally different professions, having regard to their capability of dealing with men in future life?—That is undeniable, but the question is, how much are you going to sacrifice to bring this about? It is not to be suggested that veterinary students are to be taught in classes with other students to derive these advantages.

691. I was thinking rather of the social side. The same problem arises with regard to elementary school teachers, as to whether they are not segregated?—That is, in my opinion, the advantage of a university education at Oxford or Cambridge, but in reality here, in London at any rate, and, I think, to a large extent in Liverpool and Manchester also, there is considerable segregation of medical students. There is in London; there obviously must be.

692. (*Sir Thomas Elliott.*) Although you are pessimistic as to the prospect of inducing men with that general education of which we have been speaking to come into the colleges by means of scholarships, you do not see any objection to such an arrangement on its merits?—I do not, if it is to be supplementary to an attempt to improve veterinary education at the top.

693. (*Sir T. Holderness.*) If you had a certain sum of money, in which way would you spend it—in encouraging graduates to come into the veterinary service, or in post-graduate scholarships for the men who come up to you?—In the second way you mention, unquestionably.

Winchester House, 21, St. James's Square, S.W.

THIRD DAY.

Saturday, 26th October 1912.

PRESENT:

SIR ALFRED HOPKINSON, K.C. (*Chairman*).

Sir THOMAS H. ELLIOTT, K.C.B.
Mr. H. J. READ, C.M.G.
Mr. FRANCIS C. DRAKE.
Major G. F. MACMUNN, D.S.O.

Mr. H. L. FRENCH (*Secretary*).

Professor O. CHARNOCK BRADLEY, M.D., D.Sc., M.R.C.V.S., called and examined.

694. (*Chairman.*) I think, Dr. Bradley, you are a Doctor of Medicine and a Doctor of Science, as well as a Member of the Royal College of Veterinary Surgeons?—Yes.

695. Your university is?—Edinburgh.

696. You are the Principal of the Royal (Dick) Veterinary College, Edinburgh?—Yes.

697. You have prepared a synopsis showing the number and type of students attending the college?—Yes.

698. We have that before us, and we need not go through it in detail. Just one point about the entrance examination before I go to the main points. Many of these entrance examinations are more or less familiar to us, but to take the Educational Institute of Scotland examination, how does that compare with, for example, the College of Preceptors, from the point of view of difficulty?—I think that it is pretty much on the same lines. You have each a copy of the College Calendar, and you will see the particulars of that

examination on page 70; it is really the Medical Preliminary Examination.

699. Does the University of Edinburgh accept it?—No, not the University.

700. Nor the General Medical Council? — The General Medical Council, yes. Though it is called the Veterinary Preliminary Examination, it is, strictly speaking, the Medical Preliminary Examination.

701. That is accepted by the General Medical Council?—Yes.

702. They do not accept the College of Preceptors, do they, now?—Yes, I believe so, but I would not like to be certain. I fancy that all the examinations accepted by the Royal College of Veterinary Surgeons are accepted by the General Medical Council, because the Royal College simply took the examinations *en bloc* from the medical requirements.

703. Do you take the Junior Cambridge Local as well as the Senior?—Yes, both; in this list you will see we have six Cambridge Locals.

704. Can you tell us roughly how the Educational Institute of Scotland examination compares with, say, London Matriculation?—London Matriculation is, of course, on a much higher plane.

705. (*Sir Thomas Elliott.*) I think it would be interesting to the Committee if you would briefly state your own educational and professional career, which I believe is rather an exceptional one?—I started first, as a veterinary student in 1889, and obtained the membership diploma of the Royal College of Veterinary Surgeons in 1892. I then at once started to teach in the New Veterinary College, Edinburgh. I taught for eight years and during five of those years I was attending medical classes at the university, and I obtained the usual medical degree. After that I was called to the Royal (Dick) College to succeed Professor Mettam when he went over to Dublin to take up the principalship of the newly instituted Irish college. Later, I took the M.D. in the usual way by thesis and examination, and having done two years as research student in the University of Edinburgh I was entitled to proceed to the D.Sc. without having the B.Sc. That is one of the conditions at the Edinburgh University. I did work in the university for two years and then presented a thesis on original research and obtained the D.Sc.

706. At what age did you enter the veterinary college?—As a student?

707. Yes?—18.

708. I suppose prior to that you had been at a secondary school for some time?—At a grammar school in Lancashire, at Chorley, an English secondary school.

709. Looking back at your career, which seems to me to have been a very interesting one, and more than ordinarily successful, did you feel that you were handicapped at any stage of your career—that it was rather uphill work to acquire all the qualifications you have acquired?—I was only handicapped by want of time, I think, because I had to take some of the classes while I was still a teacher.

710. You would not think it quite an ideal arrangement that a teacher should at the same time have to devote himself with a great deal of strenuousness and tax upon his strength to acquiring additional scientific qualifications?—It certainly is not desirable if it could be otherwise obtained.

711. Speaking quite in an abstract way, supposing that you were framing a scheme for the training of men who were to occupy high posts in the teaching of veterinary science and research work, what would be your ideal, apart from any question of money and apart from any question of time?—This in the abstract I understand?

712. Yes. Perfectly?—In the first place, of course, a good general education would be required—that I think we may take for granted—and after that he would require to have a very considerable amount of laboratory training—practical training.

713. At what age would that laboratory and practical training begin?—It should not begin until there is substantial scientific ground work, that is to say, there ought to be a certain number of years devoted to a preliminary scientific training. The student is then prepared to take full advantage of any subsequent training he may obtain—I should say not much before 20 or 21, allowing two or three years of preliminary scientific work.

714. Speaking again, always in the abstract, because one very often has to adapt abstract ideals to practical necessities, would your curriculum be something like this: first of all a good general education: secondly, a good general scientific training, and then the specialised veterinary instruction which is necessary for the work of the veterinary profession?—Quite so.

715. I think most of the students at the Dick Veterinary College, as at other veterinary colleges, are drawn from secondary schools?—Yes.

716. You get, I think, very few who have had the advantage of a university training as well?—Really very few The list* here only shows two from the Scottish Universities, one from Trinity College, Dublin, and one from Heidelberg.

717. Do you consider that an altogether satisfactory condition of things?—It is not perhaps altogether satisfactory, but it is a condition of things that we cannot possibly get over in view of the fact that the students we get, and I am afraid the students we are likely to get, cannot afford a university education as a preliminary.

718. Supposing that funds were available in order to enable those students to get over that difficulty, you would think it desirable, would you not?—Eminently desirable. I think it is eminently necessary—desirable at least—that the very best preliminary training should be obtained.

719. I suppose from a pecuniary point of view it would not much matter to the student, or the parents of the student, whether the individual contribution to the complete education was devoted to the payment of fees at a university, leaving the State to provide the fees and cost of maintenance at the veterinary colleges, or *vice versâ*?—No, I do not suppose it would interest the parents at all in which way the relief to them came.

720. You think it desirable that the specialised veterinary instruction should follow the general scientific training?—Yes. I think it is a very great mistake to begin specialising too soon without having a proper substantial and sound scientific basis.

721. Would you be in favour of any arrangement by which scholarships at the veterinary colleges were provided by the State and given to men of promise who were completing a general scientific training at a university?—Post-graduate, I take it?

722. Post-graduate in the sense that they have taken their university degree, but not, of course, after the veterinary diploma. Let me repeat my question, which I may have put perhaps in not a very simple fashion. Would you favour any arrangement by which scholarships at the veterinary colleges were given to men of promise with an inclination for veterinary work who had taken their B.Sc. at a university?—In veterinary science?

723. Not necessarily—in any of the branches of the B.Sc. curriculum?—I do not quite see where the graduate in science who has not taken a veterinary degree would have his preliminary veterinary training.

724. Probably again I do not make myself clear. He would have his complete veterinary training at the veterinary college by means of a scholarship given to him in order to enable him to specialise after his general scientific training?—I beg your pardon; I see quite. I take it you mean that a graduate in science would be chosen to take the veterinary curriculum?

725. That is so?—That, of course, would be a very admirable arrangement.

726. I rather gathered from your previous answer that you do feel that it would be desirable to attract to the veterinary profession men who had had a longer and more extended training in general science?—Yes.

727. And that if the State were willing to provide scholarships of a sufficient amount to provide for the maintenance and the education of young graduates of promise in order to enable them to specialise in veterinary science, obtaining, of course, their diploma

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* Appendix I 4

at the end of their training, that would be advantageous to the profession ?—Very distinctly advantageous, I think.

728. Would you say that there is a substantial difference between the training necessary for the ordinary practitioner and the training necessary for those who are to be engaged either in teaching work or research work ?—The preliminary work, of course, is precisely the same for both, but the specialist ought to have a different training ; he ought to have the general practitioner's training first and then his special training later. I do not think that it would be particularly good to specialise too soon.

729. Would you say that a man who has obtained his diploma, and is therefore in a position to engage in practice as an ordinary general veterinary practitioner, is usually in need of further and more extended and specialised training to enable him to carry out research work or to engage in teaching work ?—Yes, that is my view exactly.

730. It is with that object that post-graduate courses have been established ?—Yes.

731. Have you post-graduate courses at Edinburgh ?—Not ordinary post-graduate courses ; we look rather on the bachelor of science degree as being our post-graduate course at present.

732. (*Chairman.*) That is in the university ?—That is in the university. Of course that is, strictly, post-graduate, because it cannot be taken unless by a member of the Royal College of Veterinary Surgeons, and it entails a certain amount of extra attendance at classes in the university and the passing of additional examinations of a higher standard than those for membership of the Royal College.

733. (*Sir Thomas Elliott.*) How does the training necessary to enable a man to take the B.Sc. in veterinary science compare with the post-graduate courses which are given him without necessarily leading to a degree ?—My opinion is that the training for the B.Sc. degree is very much better than the ordinary post-graduate courses. Some post-graduate courses are of course limited to a comparatively small amount of instruction in a laboratory for a month, or perhaps two months, and personally I do not think that that is nearly sufficient to be called a real post-graduate course.

734. (*Chairman.*) Some of the men who take those courses are men who have never had any other training than the training they have received at an ordinary secondary school, plus the four years they spend at the veterinary college ?—Precisely.

735. So that no real scientific basis is built up ?—No real scientific basis.

736. (*Sir Thomas Elliott.*) For what period must a man be trained in order to take his B.Sc. degree after he has completed his ordinary diploma course ?—A great deal depends on the man. Given a good man, I calculate that he could obtain the B.Sc. in six or nine months after the veterinary diploma ; the average man would probably take longer than that.

737. Then in point of time, the training for a B.Sc. degree extends over a much longer period than the ordinary post-graduate course ?—Yes.

738. Without in any way disparaging the value of the post-graduate course, do you think that in the period of two or three months, over which that course extends, a very substantial advance can be made by a man over and above his ordinary veterinary qualifications ?—Personally, I do not, because I think that it is only at the end of two or three months that the ordinary member of the Royal College of Veterinary Surgeons is getting into the way of laboratory work. It is only about that time that he is beginning to learn.

739. Take the case of a man who has received his specialised veterinary training after having taken his B.Sc. degree at a university—a man who has come to the veterinary college at the age of possibly 21—do you think that that man would require post-graduate work also ?—Something would depend on the B.Sc. degree. B.Sc. degrees, of course, are given for various things, for example in engineering, and obviously a B.Sc. in engineering would not be of much use to a possible veterinary student. Again, if he got a B.Sc. in pure science, taking Edinburgh as an example, something would depend on the particular subjects that he had taken for his degree examination ; he had a choice, of course, of many subjects, so that everything would depend entirely upon the character of his B.Sc. degree.

740. In what subjects do you think a man who had taken a B.Sc. degree would require little or no post-graduate course after his ordinary veterinary training ?—I do not think that any B.Sc. degree as at present given, apart from that in public health, which of course necessitates the M.B., could possibly be taken as exempting him from special laboratory work.

741. What are the subjects with regard to which a man who has taken his B.Sc. degree would be the most valuable recruit for the veterinary profession ?—Of course I can only speak for the Edinburgh University. Assuming he took his B.Sc. in pure science, and had taken as his subjects botany, zoology, and possibly chemistry, those would be the most valuable to him I think.

742. Then supposing that we attracted to the veterinary profession men who had taken those degrees you would suggest that they should first of all go through the ordinary curriculum necessary to enable them to obtain the diploma, and subsequently to that a certain amount of post-graduate work ?—Yes.

743. You would then have a highly-finished product who might be likely to perform distinguished service either in the teaching ranks or the research ranks or the high administrative ranks ?—Yes ; I think as a matter of fact you would probably have an ideal product.

744. You think that sort of educational career would qualify a man for high administrative work—such work as your distinguished graduate, Mr. Stockman, does at the present moment ?—Assuming that he had also the administrative capacity.

745. (*Mr. Read.*) Do you give any instruction, or carry out any research, in tropical veterinary medicine at your college ?—If you refer to the calendar under Pathology, you will see it is stated on page 39 that the course includes " Canine Piroplasmosis, Trypanosomiasis, and recent work done in South Africa." That course is simply for one session ; it may be changed for the next session. Then under the heading Parasitology on page 49 one finds a number of sections, which, though they do not specifically treat of tropical medicine, are very cognate. We have not anything specifically tropical.

746. How do you get your tropical material ? Have you any difficulty about that ?—We generally have to rely on the kindness of our graduates abroad, who send us slides. We have recently had some slides of East Coast fever sent over.

747. Does the Entomological Research Committee send you any material ? I mean the one that we have established at the Colonial Office ?—No, it has not done so as yet.

748. It might be as well to get into touch with the secretary. He has sent a great deal to other institutions. They get a vast amount of entomological material from the colonies now.—Yes, that will be worth keeping in mind.

749. I see you suggest that post-graduate fellowships should be offered. Have you any idea at all as to what value those fellowships should be ?—You mean their annual value ?

750. Yes.—Of course you have to compete in obtaining these post-graduate men with assistantships and other appointments in general practice. One finds the utmost difficulty in getting men to stop away from general practice as soon as they are qualified. There seems to be a tremendous attraction, and you would therefore have to compete with the salaries given by the general veterinary profession to their assistants. I do not think that anything less than 150*l.* would be suitable.

751. Do you think that would retain men ?—Yes, I think so, if they were the right men, men with the right leanings, and you only want men with the right leanings. I should say that 150*l.* was the lowest, the irreducible minimum.

752. For what period?—I think for one year with the option of re-appointment, depending entirely on the reports.

753. How would you employ the men during the period? Would you send them abroad at all to study tropical veterinary medicine?—If there was any possibility, yes. In the first place we should have to put him into a laboratory in a teaching institution and give him training in laboratory methods.

754. You would give them a course corresponding to the post-graduate course of the Royal Veterinary College at the present time?—Yes.

755. After that, if they were going to specialise in research, you would send them out to the Colonies and Protectorates?—If possible.

756. Then you would want some additional sum to pay for their passage and maintenance while there?—Yes.

757. So that 150*l.* a year would scarcely represent the total expense in that case?—It would not undoubtedly.

758. You would probably have to double that?—Possibly.

759. (*Major MacMunn.*) In the case of most professions men having arrived at a certain stage in their education take them up without having had any previous inclination for the particular profession they select, but we can take it, can we not, that, as a rule, men entering the veterinary profession have some previous inclination for it and have had something to do with horses and other animals; no doubt their fathers are in the profession, or they are connected with people who are in it, or people who deal with horses. But a man who has never been connected with horses at all rarely comes to a veterinary school with the idea of taking up the veterinary profession—at least not so much as is the case in other professions?—Exactly.

760. A man who has not been connected with horses and animals, and has not been bred in the country, is not attracted so much to the veterinary profession, and the desire to deal with animals is not with him?—That is so.

761. That is rather germane to what Sir Thomas Elliot was putting?—Yes.

762. (*Sir Thomas Elliott.*) Yes. Perhaps I might interpose this question here. You would say also, would you not, that the sons of farmers and small landed proprietors might easily be tempted to enter the ranks of the veterinary profession if things were made easy for them to do so?—Yes.

763. It is not merely a question of love of horses, you would agree, but a love of country life and familiarity with country life?—Yes.

764. In the University of Edinburgh you have no doubt a considerable number of men who have passed their youth in those surroundings?—Yes, quite a number of our students have come from the country, and are the sons of veterinary surgeons, and are put in by their fathers. We must not lose sight of the fact that many of the students are sent to us for the specific purpose of getting their diploma and assisting their fathers and taking their fathers' practice afterwards.

765. (*Major MacMunn.*) My point really was that the opportunity of drawing men from the ordinary educated life of the country, men who, after a certain period of education, wish to adopt a professional career, is not so great in the case of the veterinary profession as in the other professions; that only a certain type of man is induced to take it up, and that, therefore, you do not so often get men who have had a university training?—That is so.

766. (*Mr. Drake.*) I think you said that the man who is selected after obtaining a university degree and is given a scholarship to pass through the veterinary course, would still require a post-graduate course in order to fit him for high work in the profession?—Yes.

767. That would, of course, entail considerable expense, and supposing the funds were limited, which would you attach most importance to, the post-graduate course or the previous university training?—Assuming that funds were limited I should attach more importance to the post-graduate course, but why not take the two together? It is possible to take the post-graduate course and the university degree at the same time.

768. The university degree would then come after the post-graduate course?—Yes, it would be a post-graduate degree and would embrace the post-graduate course.

769. The suggestion was, of course, to attract men who had already taken a university degree to the veterinary profession by offering them a scholarship to enable them to pass through the veterinary course?—Yes, but so much would depend on the university degree. That is where, as I have said, the difficulty comes in. You might possibly get men who had taken a university degree in certain departments of science where there would be only the broad general principles of science that would help them. I instanced engineering, for example. Obviously, a university degree in engineering would be of no further value to a man in the veterinary profession than the mere knowledge and training he would have had in the broad general principles of science.

770. However suitable the degree, if you could only get men without a university degree and put them through the post-graduate course after they had received the ordinary veterinary training, you think that would be better than to adopt the idea of allowing men with a university degree to drop the post-graduate training?—Yes, unless you can ensure that the university degree will be one of a suitable nature, that is to say, that the training will have been more or less in applied science as well as in general science.

771. But the university degree would not in any case do away with the necessity for post-graduate training?—No, I do not think so.

772. As to the number of candidates, can you tell me whether in existing circumstances all the available graduates are thoroughly acquainted with the vacancies that occur and the terms and conditions of service in the various public departments?—Of course, I can only speak for our own college, but in the case of our own college we are careful to print at the end of the calendar some of the appointments that are open to graduates. You will see "Commissions and Appointments open to Graduates," and we give a very short excerpt from the regulations of the Army Veterinary Corps, the Indian Civil Veterinary Department, and the Board of Agriculture and Fisheries.

773. Do you think that it is quite certain that graduates see this, and are aware of this?—Yes; I think that all the men who are suitable men know perfectly well of these various possible appointments.

774. In the case of Indian appointments it has been the practice to write to the heads of veterinary colleges here, including yourself, asking them if they will suggest men. Have you personally taken that as an invitation to suggest a specially suitable man, or as an invitation to send a list of all the available graduates?—I have always taken it as an invitation to suggest a specially suitable man, and not an invitation to suggest the names of all the men that could be got.

775. So that possibly the small number of candidates that has recently been brought to our notice may be due to the fact that some of the graduates who are not of the highest suitability have not been put forward?—Quite so. We are, of course, rather chary of putting forward any man who is not really suitable, because naturally, if we did so, our recommendations in future would be discounted.

776. (*Mr. Read.*) I see that there is no reference to colonial veterinary appointments in this calendar?—No.

777. Perhaps it would be useful in future to insert one?—Yes.

(*Major MacMunn.*) They are so few; there are only one or two a year.

778. (*Mr. Read.*) Yes, they are very casual, but still we do want men from time to time?—Yes.

779. (*Chairman.*) You alluded to the necessity of a laboratory training for the kind of appointments in question. What sort of subjects would be required?

—Particularly tropical diseases, pathology, bacteriology, and sanitary science.

780. Really to learn the scientific methods of treating subjects of that kind ?—Yes; protozoology of course is very important now.

781. With regard to the curriculum in your college, roughly speaking, what do the different years consist of ?—The first year chemistry, biology, and elementary anatomy; the second year anatomy, physiology, stable management, and shoeing; the third year pathology, bacteriology, materia medica, and hygiene; and the fourth year veterinary medicine and veterinary surgery and obstetrics.

782. Throwing aside financial considerations for the moment, and looking at the ideal man for what you call the higher appointments like the headships of colleges, and the higher appointments involved in research work, and the various departments of State, what would be your ideal of a suitable man ?—Absolutely the ideal.

783. Yes, the limit towards which we aim—whether we attain it or not is another matter ?—A university degree in Arts.

784. In Arts do you include the higher scientific attainments ?—No, I think I would limit it to Arts. Then a really substantial training in fundamental scientific subjects, such as chemistry, botany, zoology, and so on—if possible, a degree or a pretty high standard of examination in those preliminary scientific subjects. Then give the man a general training in veterinary work.

785. In the veterinary college ?—In the veterinary college.

786. For how long would that be ?—The professional training ?

787. Yes, when you have once got up to the stage of the man who has been through those university courses ?—He would require, as a minimum, three years, and then specialise after he has done his general professional training.

788. That would be post-graduate high class laboratory work ?—High class laboratory work.

789. Where would that be carried on—take bacteriology, for example ?—I think that the most suitable place would be in the veterinary schools.

790. If the schools were able to accommodate them ?—Yes.

791. Take, as an example, the research work carried on in the bacteriological department of a university. That would be helpful ?—Yes.

792. You mentioned one or two other subjects ?—Protozoology.

793. Yes ? — Protozoology, of course, should be partly general and partly applied.

794. The existence of a department like the departments of bacteriology and zoology in the University of Edinburgh would be helpful ?—Yes.

795. And in the same way, at Liverpool, the School of Tropical Medicine ?—Yes.

796. The two things might, in fact, be worked together, might they not ?—Possibly.

797. And so get the benefit of the university researches on those lines ?—Yes.

798. Coming down from the ideal, which would, I suppose, take about 10 years —— ?—Yes.

799. To the next best thing, what would you say to this kind of course, speaking now not of the ordinary practitioner but of men with good advanced knowledge. Instead of insisting on the Arts degree—which is a good thing if you can get it—for the man to take a university degree in sciences bearing on veterinary work ?—Yes.

800. A university degree in science, including biology. Would you like to have men of that type ?—Yes—I am always assuming that to obtain a degree in science postulates a good general education.

801. Yes, there is a minimum now. I cannot speak for Scotland, but English universities start with a standard as high as the one you mention—that is the normal standard ?—Yes.

802. I suppose in Scotland it is much the same ?—Yes.

803. Starting with that standard, which is much in advance of the present one, and then tacking on to that general education a science degree including biology —— ?—Are you speaking now of general practitioners.

804. No, specialists—and eliminating from the counsel of perfection the Arts degree for the moment as a thing that is desirable but not essential. Supposing you get now to the man who has taken a science degree including biology, that would be a good ground-work to build on ?—Admirable.

805. If he took biology ?—Yes.

806. How much of the four years of the veterinary course would you cut off by virtue of the man having got his science degree ?—Really only a piece of a year because the veterinary work commences as soon as the man begins his curriculum. He takes anatomy, for instance.

807. You take anatomy in the first year and continue it right through ?—Yes.

808. He would learn quicker, of course ?—Yes.

809. Do you think that it would be quite possible for a man of that description to get through in three years ?—Yes, quite possible.

810. You think that three years at least is necessary for any man, however qualified ?—Yes.

811. For the B.Sc. you have what is called an intermediate stage, do you not ?—No, only one.

812. How many years does it take to take the degree from matriculation ?—In pure science, B.Sc ?

813. Yes ?—Three years.

814. You do not have an intermediate stage ?—No, it is just one.

815. As to the post-graduate work, I understood you to say in answer to Mr. Drake that the greatest need for financial assistance would come at the end of the taking of the diploma to induce a man to devote himself to the work ?—Yes.

816. In order to qualify for these higher appointments, including teaching and administrative appointments, and research, for how long would a man be required to engage in such work as post-graduate work as far as you can judge ?—I think two years.

817. One year would be better than nothing, but two years would be still better ?—Exactly.

818. Then with regard to the question of inducing men of the scientific type to become thoroughly trained men in order to take up these appointments, do you think that question is more affected by the want of means to go through the post-graduate training or by the uncertainty of his obtaining an appointment after he has qualified ?—It is very difficult to say, but there is no question that lack of means is a very serious obstacle to the suitable man. The suitable man if he had the means might be induced to devote himself to the work.

819. May we take it that in your opinion where the shoe pinches is in the disinclination of the good man after he has got his qualification to give up further time to post-graduate work ?—Yes.

820. And that some further inducement is necessary to counteract the attractions of general practice as soon as he has got his qualification ?—Quite.

821. Do you think that it would affect the matter if an appointment could be allocated to a man soon after he took his qualification, and then the man were put in the position of a sort of probationer, as he is in some of the public departments, so that he would know he was certain of an appointment as soon as he was properly qualified ?—So that he would know there was no possibility of his not being taken.

822. So that he might be sure of getting an appointment. Would anything of that kind be helpful ?—It might possibly be, but if he was on probation he would not be absolutely certain of his appointment.

823. No, but it would be allocated, as it were, to him, and if he did his work properly he would be certain of an appointment and know what the class of appointment would be ?—Yes, that would be an inducement, there is no doubt.

824. The certainty that he has a career in front of him ?—Yes.

825. And if there were a scholarship to bridge that period, it would be still more useful ?—It would be all the better.

Professor ROBERT WALLACE called and examined.

826. (*Chairman.*) You have kindly furnished us with a précis of your evidence, but we are rather proposing to take it a little out of the order. You are Professor of Agriculture and Rural Economy in the University of Edinburgh?—Yes.

827. You have had opportunities of considering the kind of requirements as regards veterinary training that are important for the men who are going to take up that class of work?—Yes, it is a part of our degree, and we have therefore paid special attention to the necessities of veterinary science.

828. Do you and the Veterinary College work together harmoniously, although not as part of the same institution?—Yes, and I should like to have seen it even more connected with the university if possible. We missed an opportunity of taking it over as an affiliated college a little while ago, which was a great disappointment to me.

829. A closer connection would be advantageous?—Yes; it would be simply the making of both; it was a great opportunity that was lost.

830. With regard to some of what we may call the preliminary scientific subjects in the veterinary course, are they given by members of the university—such subjects as chemistry and biology, for example?—Yes, we have regular classes corresponding very much to these classes in the college; in fact, the college classes have been accepted as equivalent to the university classes.

831. Looking at it from the public point of view, a closer connection between the college and the university would be advantageous?—It would be an advantage, if we could only get the class of man we would like to see in the veterinary profession; there would be no difficulty.

832. Pursuing that for the moment with regard to the status of the veterinary profession, it would be advantageous, in your opinion, to have the men brought more closely into contact with men following other professions?—Of course it would. It is a learned profession now, and ought to be considered as on the same level as the others, and it will be so before many years.

833. At Edinburgh and other places at the present moment there is rather a line of demarcation drawn between them?—I am sorry to say there is too much of a line. The old prejudices do not admit these new professions, and it is an absolute necessity that that feeling should be broken down sooner or later.

834. From the point of view of its influence on men going abroad to take up appointments, and as to their knowledge of men and their capability of dealing with men, do you think it a matter of great importance to keep the university and the veterinary school in close touch so that the students can intermingle?—Yes, the closer the better.

835. And that some of the subjects might actually be taken by one class of students drawn from both?—Yes, there is practically no necessity for duplicating chemistry, botany, and that sort of thing. There is no doubt about that; they are the same subjects in each case.

836. This duplication is not only uneconomical but leads to inefficiency on the part of the teacher?—Yes, the way some of these veterinary men are paid it is quite impossible to get a properly qualified man to teach at all.

837. Looking at it from the point of view of the veterinary profession and of the public service, dismissing the universities for the moment, do you think it would be a useful thing if some of your science graduates could go on and take an ordinary veterinary course?—That is rather a difficult question. I have encouraged some of my men to take the veterinary course, and the consequence was that three or four of them failed to get agricultural appointments because they were qualified vets. Because they have taken the veterinary course they cannot get the other appointments. People say, "He is a veterinary surgeon, and we do not want him."

838. Where your graduates go in for the veterinary course, do they get any allowance off the four years' course?—Yes, some of the subjects are regarded as being the same—chemistry, for example.

839. They accept the university degree course in chemistry?—I am perhaps mixed up. I am not sure that I follow your question.

840. Is there any case at present, to your knowledge, in which the requirements of the four years' course for the veterinary diploma has ever been shortened by reason of a man having taken a university degree and therefore had a scientific training?—I do not know, but I think there would be no difficulty about that really.

841. I mean from the point of view of competence of training it would be quite sufficient?—Yes.

842. You could shorten the veterinary course by at least a year?—Yes, and it should indeed be shortened. Our university training in these pure sciences is supposed to be on a higher level.

843. It would be an advantage both as regards the better scientific training of the men, and also as regards breaking down the wall of partition that exists, if you could get a certain number of university graduates to take up the veterinary profession on a shortened course—a three-year course instead of a four-year course?—Yes, it would, but that is a matter for the powers that be.

844. I am rather asking from the point of view of the public service and of the veterinary profession?—Yes, but the power to alter matters does not lie with the students. I am afraid there would still be difficulties on the part of the authorities and people in control of university matters.

845. We may take it, first of all, that there are two classes of men really that we are dealing with?—Yes. I think that is a very essential point.

846. Let me see if I understand your point with regard to that. There is one class, what you call the regular veterinary practitioner?—Yes.

847. He goes into practice, it may be in England or elsewhere, as an ordinary veterinary practitioner?—Yes, anywhere in the United Kingdom, or the Empire. That is the man who usually wants to go abroad, the practical man.

848. Regarding him, would this be a fairly adequate training if he came from a fairly good secondary school, that he should pass his examination and do his three- or four-year course in the veterinary school?—You see these secondary schools' chemistry is very shaky; we in the university are very chary of accepting it.

849. In the case of the type of man whom you might call the less highly trained type of the two classes, what additional training do you think he ought to have beyond what I have sketched?—Everybody must have some training in mycology and bacteriology, because they will have to deal with so many different diseases and they must know something of it.

850. Take the simplest case of the ordinary veterinary practitioner at home. What would be his training? I want to differentiate between the training of the two classes you have indicated?—The ordinary veterinary practitioner must be thoroughly practical from beginning to end. For that reason I suggest that he should be drawn from the farming class or those connected with the land so that he may have a country upbringing. That is almost essential, in my view, for the really successful veterinary surgeon. The scientific man can do very well without that. For the ordinary practitioner, and the man who is an inspector under the Diseases of Animals Act, it is, I think, very essential that they should know diseases when they see them.

851. Although you cannot stipulate that they shall only come from that class, you must make the course practicable for men of that class?—Yes, I do not know how it is to be done, but that is the class that should be encouraged. You cannot bar a man, of course, who comes from another class, because he might do very well.

852. You must leave the door wide open to let both classes of man in?—Yes.

853. I want to know what the sort of minimum training for a man of the class you refer to should be. Are you in favour of any change from the system that exists at present?—I want to see the training raised; I want to see it go gradually up. We are drawing the ordinance for a new degree in agriculture. Before, it was a three years' course and we are going to make it a four years' course, and we want to see outside bodies stiffen it up as well.

854. And also a better school training?—A better school training will help. Of course the better schools are not largely distributed yet.

855. Nothing like a university degree?—No, of course not.

856. Or nothing like prolonged post-graduate work?—No, not for that type.

857. Now as to the type of men who are going to be leading teachers and investigators, and some of them administrators, would you say what training you would suggest. See if I can suggest what the training might be for those men. You get, first of all, a good general education tested by an examination such as your matriculation?—Yes.

858. Rather higher than the examination that has to be passed at present?—Yes, if it were up to the degree standard it would be all right.

859. For the ideal man what would you suggest?—He would take the diploma of the Royal College of Veterinary Surgeons, for example.

860. As an alternative, instead of going from the school to the veterinary college, suppose he went to the university and took a degree including biology and chemistry and the allied subjects, or if not a degree, that he was up to a very high standard?—You want to have the pick of the whole of these men, because there are very few wanted and you want as big a field to choose from as possible. You do not want to differentiate between them at first; you want to wait until they have got their ordinary veterinary qualification and then build on that.

861. You want to keep the field of choice as wide as possible?—Yes.

862. Would it be an advantage to have that field of choice reinforced by the man who has taken a science degree and who afterwards takes up veterinary work?—It would be a matter of raising the status and of better remuneration, because science men will not go into the veterinary profession unless the attractions are very much higher.

863. Assuming there were adequate inducements, it would be advantageous to widen the field of choice by adding that class of man?—Yes, the bigger the field the better.

864. But you think it essential not to bar the other type of man, who might prove the better practical man?—Yes, that is so.

865. Now speaking of the man of the more advanced type, would it be advantageous for him to take work in a bacteriological department or in a tropical diseases department?—Yes, that is exactly what I should like to see; that the specialist should have several branches or avenues which he could fill up just as they are found to be required abroad.

866. For men of that type, would the kind of training which is given in a good bacteriological laboratory, or in a really good botanical laboratory, where subjects of that kind are taken, be useful?—Yes, I should like to see this higher work associated with the universities as far as possible, because it gives a man a university status and gets over the difficulty that so many of them have.

867. I just want to make sure that we follow that point. It would first have the advantage of bringing the men into university association both socially and intellectually?—Yes.

868. And be helpful as widening the man's point of view and increasing his power of dealing with men and things of that sort?—Yes.

869. It would make him less provincial, as it were?—Yes.

870. To go from the social and moral and intellectual side to the practical side. Would the kind of work which would be given in one of your departments, say bacteriology, and the methods and principles studied there, make a man better qualified to deal with practical problems when he meets them?—Yes, only a little change would be required to be made. At the Botanic Gardens, Edinburgh we have a magnificent laboratory, and an expert, a very high-class man. He, however, has only three or four of my students, and at the present moment all contagious diseases are barred; they say it is too dangerous. That could be altered. If they had a proper number of students they could have a full course, and a little change could be made to allow anthrax and all dangerous diseases to be worked at, the same as those that are harmless.

871. Just as they are worked at in the universities?—Yes.

872. That would be an efficient way of dealing with men who had already a proper veterinary qualification and wanted to pursue elaborate scientific work?—Yes, post-graduate work—men who had any amount of time to devote to it.

873. Now we come to the question of assistance out of public funds. Where do you think, if I may use the phrase, the shoe pinches in the case of these men if you want to give them this training? I refer to the second class of man, the more elaborately trained man. Where does the shoe pinch in their case; financially, do you think?—These men must have scholarships. The men that we should like to see follow up the post-graduate work are tempted away to earn money immediately, and you cannot get them to study veterinary and go on with the idea of making themselves expert unless they are helped by public grants.

874. You know something of the type of man that goes through the veterinary colleges?—Yes, I know them well.

875. Take that type of men: do they usually come from homes of very moderate means indeed?—Yes, a great many of them do.

876. The parents, being also Scotch, I suppose, do not think it is much use for him to go on with his course after he has qualified—they do not see their way to allow him to go on any further?—Yes, that is so, and a very hard pinch it is for some of them to even let him go on up to that stage.

877. Take either the university graduate who has got his degree, or the man of practical attainments who has got his diploma, if scholarships were given to carefully selected men after they had got their diplomas, would that be useful?—Yes, that is the only way to build up this higher work.

878. As to the amount of scholarship, what, in your opinion, would be the minimum?—100*l.* to 120*l.* I do not think it would be useful to give them too much, because they would get into ways of spending it. I think it is better to give just sufficient and no more; I think that keeps a man a better student.

879. You think that the State should be pretty rigid on that point?—Yes, I think so.

880. Is there any method of selection that you would favour for the work they have to do afterwards?—Their selection should depend on their doing very good work in their ordinary course.

881. Do you think, having regard to the homes and training these men have up to their qualification, that they should be offered a certainty of decent employment after their research work is done?—Yes, I think it is one of the weak points in the veterinary profession that appointments have not been found for these men.

882. Supposing the appointments in the different departments of State were pooled, so that there would be a certainty, or at any rate a greater probability, of a definite number of appointments falling vacant each year, do you think that would have a beneficial effect?—Yes, and it would undoubtedly bring men of ability in, too, because they would see that an opening would be provided for them at the end of their training. Money is really at the bottom of the whole of these efforts by the students; there is no doubt about that. They are shy of any line in which there

is any doubt as to the possibility of their making a living afterwards.

883. You would not have any difficulty in finding the type of man in Scotland who really cares about his science, as such, and would like to pursue his studies if he was offered financial assistance meanwhile ?—No. Of course, they would not be any good if they had not a liking for it.

884. You have in your mind a definite type of man in Scotland—a scientific type—who, if he were reasonably financially assisted, would care for the advancement of his scientific knowledge ?—Yes ; there are not many of them, but we do get to know such men.

885. You in the university, as in other universities, get to know that type of man who is rather different from his fellows, and when you find him he is a treasure ?—Yes, he is absolutely different from his fellows ; it is his hobby. We have them every year, but not many.

886. But you do come across them ?—Yes, and there has been no provision for those men. Really, in agriculture, we have to let them drift. We have one man of the kind now, but there is no opening for him. He has been working at advanced work for years, and he has now had to take a commercial appointment.

887. Is there any other point that you would like to direct our attention to ?—No, I do not think there is anything else.

888. (*Sir Thomas Elliott.*) Parents do make considerable sacrifices, do they not, to send their sons to the university in Scotland ?—Yes.

889. That would apply also to England ?—I have no doubt. I do not know so much about England, but it is quite right that these people in Scotland do make considerable sacrifices.

890. They attach a certain value to university training for their boys ?—Yes.

891. In the University at Edinburgh, at what age would the university training be usually complete ?—Somewhere about 21 or 22.

892. Do any substantial number of those boys of whom you are speaking, who have completed their university training, enter the veterinary profession ?—No, very few, and all of these men who have taken the degree with me, and taken the degree in veterinary afterwards, have done themselves an injury in getting appointments in agriculture. I know three good men who have failed to get agricultural appointments because they had a veterinary qualification; it took away from their chance of getting agricultural appointments.

893. Do you get into the veterinary profession men who enter the university with a bursary and take a university degree, say, at the age of 21 ?—No, I am afraid that the veterinary profession does not appeal to them.

894. Parents in Scotland make very considerable sacrifices, you say, to give their sons a university training ?—Yes.

895. You would regard, would you not, in Scotland, those men who have had a university training, very often at the expense of considerable sacrifice on the part of their parents, as a very valuable element in Scottish life ?—Yes, undoubtedly.

896. Do you not regard it as unfortunate that the veterinary profession should not attract any men of that type who have taken their university degree ?—And to follow out the veterinary line ?

897. Yes ?—Undoubtedly it would do him a great deal of good. Perhaps my remark about the agricultural men may mislead you. I thoroughly believe, of course, in the veterinary men who are best qualified to do it taking a degree.

898. I want if possible to direct your attention to the recruit for the veterinary profession. At the present moment you are aware that the veterinary profession is practically wholly recruited from boys who have had a secondary school education ?—Yes.

899. That it is not recruited from boys who have had a university education, and have taken their degree ?—The reason for that is——

900. I am not asking the reason for the moment I want to get the fact clearly ?—Yes, it is the fact.

901. I want to know whether you think that is a satisfactory condition of things ?—Anything but.

902. Now let us proceed to the reason. I suppose the reason would be that the parents, having given their boys the opportunity of being trained in the university, can do nothing more for them ?—Nothing more ; they are then able to earn their own living, although it may be a small living.

903. Do you not think that if the State were to provide scholarships for the purpose of enabling graduates at the university to train in veterinary science for a period of three or four years, that we should then attract to the veterinary profession a type of completely trained men that we do not attract now ?—That is a new idea, you see, altogether. We have not thought of that before. If the inducements are made good enough there is no doubt that it would attract graduates in the university to go through such a course.

904. By that means we should assist in recruiting the veterinary profession, not exclusively from secondary school boys, but from university graduates also ?—Quite, and from my own men. If they were going to take a veterinary line, the advantages would be greater, having had a B.Sc. before they began their work.

905. (*Chairman.*) What would be the minimum adequate scholarship for them at that stage, in your view ?—The man requires to have his fees paid, of course. I think about 150*l.* altogether, including fees, would do it very well.

906. Do you mean 150*l.* a year ?—Yes. It would take at least 120*l.* My idea at first was 100*l.* or 120*l.*

907. You were speaking then of the post-graduate scholarship ?—Yes.

908. Now take the kind of scholarship that Sir Thomas Elliott is alluding to—one to enable the university graduate to go through his veterinary course and take up research work after he has got his veterinary qualification ?—The scholarship should range somewhere between 120*l.* and 150*l.*, not less and not more.

909. It would amount to just about the same at that stage as at the other stage that you referred to ?—Yes, just about the same.

910. (*Sir Thomas Elliott.*) Take the case of the young man who has completed his university course and taken a degree in science—chemistry, biology, and botany, and suppose you were to say to him, "If you " are willing to present yourself to be specially trained " in veterinary surgery we will give you a scholarship " of 150*l.* for three or four years, and at the end of " that period you will have a chance of obtaining a " Government appointment," do you think that would attract a certain number of men ?—Unquestionably, and you would get a better class in that way.

911. Do you think you would attract a fair proportion of the best graduates of their year at the university ?—Yes, there is no doubt you would, and you would have it in your own hands whether the man was up to a certain standard ; he would have to pass a certain standard of examination.

912. You think by that means, the selection of university graduates to be trained in university science by means of scholarships provided by the State, that we should then have in the veterinary profession a largely increased number of men who were capable of doing high teaching work and research work ?—I think so. I think it would open up a big field and a wider field altogether

913. That idea, although possibly a new one, is an attractive one to you ?—Undoubtedly.

914. With regard to education generally, would you say it is desirable that we should proceed from the general to the particular ?—That is, to begin with, a broad general education first ?

915. Yes ?—Pure science you mean ?

916. First of all a general education, then a general scientific education, and then a specialised scientific education ?—There are some of the specialised subjects that have to be studied for a long time. A man has

to begin really to have some association with them before his course has gone very far. He is simply a pure science man up till near the end of his work. I am speaking now in connexion with my own subject, agriculture. Agriculture is a subject that he ought to begin early; if he waits until the last two years he is not such a good man as a man who has begun with that branch of work in a tentative way at the early part of his career.

917. You appreciate the point on which I am anxious to get your opinion, that is, as to whether it is an advantage to a man who is going to specialise in scientific work to have had an opportunity of getting a conspectus, as it were, of the whole range of science on general lines in the first instance?—Yes. I understand now what you mean. That is essential.

918. There is a certain danger in a man specialising too early and not being sufficiently familiar with the whole range and interrelationship of the various branches of science?—Yes, that is a very important point. A man should have a wide basis of science so as to be able to fit one into the other.

919. Do you think we should possibly get that in the way suggested, by taking the university graduate with a degree in a suitable number of subjects and then training him for the veterinary profession?—Yes, and I think if you could draw them from any one of the degrees in applied science, or pure science, you might get the pick of men in forestry, agriculture, and pure science.

920. (*Major MacMunn.*) With reference to the class of candidate that Sir Thomas Elliott suggests, a man who has taken his science degree and then is assisted financially to take his veterinary degree, do you think that a man who has been brought up in a town is likely to care for a veterinary career, or, if he did, is likely to be successful; or do you think that early associations with animal life and a feeling for animals and a country upbringing is a necessity?—Yes. I do not think I would select these men unless they had been brought up in the country. I think that is absolutely necessary. A boy learns a great deal about animals if he is associated with them is his early years.

921. Supposing a man who had not been brought up in the country desired to present himself after taking his science degree to go on for veterinary study, would you eliminate him?—If he was going to take up bacteriology or mycology it would not be necessary for him to know much about animals. If he was going in for the study of blood diseases you might get a suitable man although he had not been brought up in the country, but it would be the exception and not the rule.

922. (*Sir Thomas Elliott.*) Is not the distinction this, that you must have regard to what the man is going to do afterwards?—That is so.

923. If the man is to engage in research work in bacteriology or protozoology, the fact that he has been brought up in the country or on a farm amongst farm animals is really absolutely immaterial?—Absolutely—that is for a specific subject.

924. But if he is going to engage upon the actual business of treating and dealing with farm animals, attending to their injuries and complaints, then a knowledge of work on a farm is very valuable?—Yes.

925. But you must have regard to what the man is going to do?—Yes, the difficulty and the danger in that case is that a man who is very distinguished in that line may be selected for the principalship of a college where he would not be at all satisfactory—although he was a famous specialist. That is the danger.

926. (*Major MacMunn.*) The veterinary profession is one in which, if you wish to go on to the higher work, you want to be a practical man first to a great extent. I may be wrong, but I presume it is much the same as in the military profession?—Yes. Of course a man who has gone through the Royal College must come up to a certain standard.

927. (*Chairman.*) If the State were to give these scholarships for men to do this higher work after taking their veterinary qualification, would you have those scholarships open to both classes of men—men who have been trained through the university plus the three years in a veterinary college, and men who had not gone through that course at all, but had simply taken the ordinary veterinary course?—Yes.

928. You would have the open door for both?—Yes.

929. You would like to keep the field of choice open to include both?—Yes, because there are so few tip-top men of that class that the field ought to be as wide as possible.

930. One man might go up by one avenue and one by another, but each be equally able to do useful work afterwards?—Yes, and if one of them happened to be deficient in the science work at first he would make it up afterwards.

931. Supposing he has got his scholarship, would you give him some considerable latitude of choice as to what subjects and where he should pursue his post-graduate study?—Yes, I think so, but where he can get it at home, so much the better.

932. You would have free trade in that respect?—Yes, I think so.

933. Providing the institution was able to supply the teaching required, having regard to his future career?—Quite. I should think he would be able to stay at home, but Germany is certainly in advance of us in some subjects.

934. You would give him a range of choice, and that is the only way in which you think you would get adequate results—as regards research, at all events?—Yes. Might I say that the reason I put the scholarship at 150*l.* is because these men who graduate in agriculture can command 150*l.* and 200*l.* a year, and even more, immediately they graduate, and the best men would be likely to be attracted in those directions if the amount of the scholarship was too low.

935. The amount of the scholarship must be enough for him to live upon and enough to be a reasonable counter-attraction to his immediately entering the profession and beginning to practise?—Yes. The man who is really interested in science would, I think, prefer to pursue his studies, if he got all his outlays, rather than accept the few pounds extra that he would get if he left immediately to take up an ordinary commercial appointment.

936. (*Mr. Drake.*) Your estimate of 150*l.* is based on the conditions that prevail in Edinburgh?—Yes.

937. It would be cheaper, would it not, for a student at Edinburgh than at any of the other university towns?—Yes. I do not think that 150*l.* would cover his course at Oxford, for example.

938. That would hardly cover the cost of the fee, as well as the cost of living, at Oxford?—No, but it would at Edinburgh.

939. (*Chairman.*) Do you know whether the fees for post-graduate work at the universities are much lower than the fees for the earlier work?—I could not say definitely about the fees. I do not think they are very high, but laboratory fees are always the highest; they are always pretty substantial. There is one point that I have not mentioned, and I should like to refer to it if I may, that is, about the financial support for our veterinary college and the amount of money necessary. I am rather keen about that, but perhaps it is outside the field of your inquiry.

940. There is no harm in mentioning it, although it is not, perhaps, within the purview of our inquiry?—It is really a very important point, because all this that you have been talking about would be impossible unless we get more money. We must get 2,000*l.* a year at least for Scotland. I do not say anything about Ireland, because I believe Ireland has been provided for.

941. (*Sir Thomas Elliott.*) Is that 1,000*l.* for Edinburgh and 1,000*l.* for Glasgow?—For Edinburgh. You cannot have two veterinary schools in Scotland; there must only be one. If Glasgow is the best place have it in Glasgow, and if Edinburgh is the best place have it in Edinburgh, but there must not be two colleges in Scotland. It would be impossible; they would cut each other's throats, and it would be

an injury to the profession and a waste of public money to have two.

942. (*Chairman.*) In your view, the work can be done more efficiently at one college than at two?—Yes, I think there should be only one college in each of the three kingdoms.

943. You think that there should be substantial financial assistance extended to the college by the State apart from the income derived from individual students?—Yes. The colleges have always been starved by the Government; they have never had sufficient funds to carry them on properly.

944. You also think that any connexion with a university would be of great help to a college in doing its work economically?—Yes, undoubtedly. The degrees in B.Sc. and D.Sc. in veterinary science, which were instituted by the University in Edinburgh last year in connexion with the college, have made that connexion now.

Mr. SIDNEY VILLAR, F.R.C.V.S., called and examined.

945. (*Chairman.*) I am sorry, Mr. Villar, that we have only been able to give you such short notice, but we were anxious to take evidence from a representative of the veterinary profession outside the teaching bodies. You have been in practice for many years as a veterinary surgeon?—Yes.

946. You now hold an appointment under the Middlesex County Council as their adviser on veterinary matters?—Yes, as local inspector under the Diseases of Animals Act.

947. As you know, the purview of our inquiry is to consider what can be done with regard to the provision of suitable men for the Indian, Colonial, and War Office and Board of Agriculture services?—Yes.

948. Would you give us any suggestions that you have to make with regard to that subject from the point of view of the profession?—The feeling, speaking not from my actual personal experience, but from what I have heard, on the part of young men in the profession and candidates for such posts as those, is that the general appointments of the Board of Agriculture and for some of the Colonial Services—I might particularly say New Zealand—and that sort of thing are underpaid; the salaries offered are not sufficient inducement for the men to come forward.

949. The War Office offers the best terms, does it?—I think the War Office is looked upon by the young men in a favourable way.

950. But in the other cases the appointments are not thought to be good enough when the men get them?—No, not generally.

951. Do you think there is any difficulty on the ground of uncertainty as to their getting appointments—that as there are very few appointments it is not certain when they will come round? Do you think that affects the question?—Supposing the number of appointments was increased, and at the same time the emolument, there would, of course, be more men come forward.

952. If the number of appointments was not increased, but the appointments in the different departments were pooled so that there would be a little more certainty as to when they would come round, do you see what I mean?—Yes.

953. Would that be any advantage, do you think?—I think it would be of very little advantage, as a rule, unless the pay was increased.

954. If you could pool the appointments and increase the pay in the various departments, you think the two things together would help each other?—Undoubtedly.

955. (*Sir Thomas Elliott.*) You have considerable experience, as I know, of course, of the special work of the Board of Agriculture?—Yes.

956. Would you say, speaking generally, that that work requires certain special qualifications on the part of a veterinary practitioner?—Yes.

957. Would you say that owing to the diseases dealt with, and the general character of the work, that only a limited number of members of the veterinary profession are really able to deal with that work?—I should say so under present conditions.

958. Take, for instance, the diagnosis of the disease that we have had so much to deal with during the last three months: one could not leave the final diagnosis of foot-and-mouth disease to more than a comparatively limited number of the profession?—Of course it is only a small number who have practical experience of that disease.

959. Does that lead you to think that a certain special training is necessary in addition to the ordinary training of a veterinary surgeon, in order to enable him adequately to discharge the duties that have to be done by the officers of the Board of Agriculture?—Generally, but I do not think in the case of foot-and-mouth disease.

960. I am speaking generally. I gave foot-and-mouth disease merely as an illustration. Do you think that the difficulty of obtaining suitable candidates for some of these appointments arises from the inadequacy of the salary or the insufficiency in the number of men specially trained who might fill them?—I think, undoubtedly, the small number arises from the poor prospect.

961. On the other hand, do you think that a sufficient number of men suitable for those appointments are at the present moment turned out by the schools?—Yes, under improved conditions of service.

962. You think that some improvement in the conditions that exist at the schools would be desirable?—No, I beg your pardon, I meant improved conditions of service.

963. Are you quite satisfied that at the present moment the ordinary training for the general veterinary practitioner is in itself sufficient for the class of work that you have been referring to?—Of course, to an extent, different schools turn out a different class of man, and I think, taking it right through, that a man would be very much benefited by the post-graduate course. Personally I went through it.

964. I suppose that is the case with regard to the majority of men who have been appointed to Government posts during the last few years?—Yes.

965. They have taken the post-graduate course?—Many of them.

966. What is the length of the post-graduate course?—Between two and three months.

967. Do you think that is a sufficient specialised training for the appointments we have in mind?—I think for the ordinary inspector it would be sufficient, on the top, of course, of the veterinary education he has already received, and the scientific education he has also already received in the case of some of the schools.

968. You do not think that it would be of service to extend that post-graduate course?—It would, undoubtedly.

969. Would you favour any arrangement which would make it easier for the colleges to provide such courses?—I take it that really they want more accommodation in the way of laboratories, and that sort of thing, and of course they would want increased teaching staffs, and what I was going to suggest is, that if this extended post-graduate course could be given at the same fee as it is now it would be a very great advantage and a great inducement for young men to go in for it.

970. Do you think that it is simply a question of fees? Do you think, supposing the fees were put at a nominal amount, that even then you would get young men willing to give up the time in order to take a more extended post-graduate course?—To a limited extent, certainly, they would be anxious to do it, I think.

971. Do you think you would get enough men willing to give up their time simply by the acceptance of a nominal fee?—I say a limited time; I should limit it to a few months. An increase to double the time or, say, an increase to six months of post-graduate

work, would be of greater benefit than the present course, and I think there would be many men who would go for six months.

972. You are aware, of course, that within recent years there has been a considerable quickening of university life in this country?—Quite so.

973. Apart from the old universities, we now have universities in several of the great cities of this country and of the Empire which have been placed in one way and another on a very stable footing, and which occupy an important position in the educational life of the country?—Quite.

974. Have you ever thought whether there would be any means of bringing the veterinary colleges and the veterinary profession into closer relationship with the universities?—That has been tried in Liverpool, of course.

975. Has that been successful?—As a school I should doubt very much whether the number of students paid, from a financial point of view.

976. Have you seen any of the men Liverpool has turned out?—I have been to the University and seen the students there; but I do not know that I can call to mind at the present moment a man who has qualified at Liverpool.

977. Do you think it would be of any service to the profession if we could attract to it men who have had the advantage of a general scientific training at one of the universities of which I speak?—Do you mean pre- or post-graduate training?

978. Post-graduate meaning post the degree in science, but pre-graduate meaning pre the diploma of the Royal College of Veterinary Surgeons?—It would be of advantage, but if I might put it the other way, that it should be post-graduate as far as veterinary surgery is concerned—that a man should first of all graduate in veterinary medicine, and then should pass on to a higher scientific education.

979. (*Chairman.*) That really a man should take his veterinary qualification, which means four years normally, and then that he should take some higher scientific work to qualify him for special appointments at some institution which had bacteriological laboratories, or special means of teaching methods of scientific research?—I think that would be the better way.

980. (*Sir Thomas Elliott.*) Is not the drawback to that arrangement this, that the profession then recruits its members entirely from the secondary schools and gets none of the men whose parents have been willing to give them a university training?—Yes, but if I may put it: supposing the value of these posts is increased, we should immediately get men who have been to better schools.

981. Do you not think that there are a number of parents who are willing enough to make sacrifices and give their boys an education, say, up to the time they take a degree at a university, possibly up to the age of 21, who would be unwilling then to pay for the further education of those boys at a veterinary college?—True.

982. Do you not think that it would be of service to the profession if we could attract such young men to it?—Yes, in the case of a certain number of boys or young men, provided they originated from suitable positions in life—I mean provided their parents were agriculturists or farmers, or veterinary surgeons—that would be all right; but to take what you might call the ordinary scientific youth, who had had no training or association with animals at all, and expect him to do good work, would be a great failure. I am speaking generally; there would, of course, be exceptions.

983. In the veterinary schools themselves during the early period of the curriculum they would be in constant touch and association with animals?—Yes, but not to such an extent as they ought to be. That is the drawback to the schools at present, that we are not able to give them enough practical training.

984. Would you say that that is the case at Camden Town?—I should say one might quite well give them a much better practical training than they get at Camden Town.

985. The difficulty, I suppose, is one of a practical character, that you cannot get the animals there?—That is what I mean.

986. And then, again, the difficulty of experimenting with contagious and infectious diseases in a school?—Yes. That would only apply to a few of the diseases, I take it.

Winchester House, 21, St. James's Square, S.W.

FOURTH DAY.

Friday, 15th November 1912.

PRESENT:

SIR ALFRED HOPKINSON, K.C. (*Chairman*).

Sir THOMAS H. ELLIOTT, K.C.B.
Mr. H. J. READ, C.M.G.
Major G. F. MACMUNN, D.S.O.
Mr. FRANCIS C. DRAKE.
Mr. H. L. FRENCH (*Secretary*).

Mr. (now Sir) STEWART STOCKMAN called and examined.

987. (*Chairman.*) I think you are chief veterinary officer of the Board of Agriculture and Fisheries?—Yes.

988. You formerly occupied the position of Professor of Pathology and Lecturer on Hygiene and Meat Inspection at the Royal (Dick) Veterinary College, Edinburgh?—Yes.

989. You have also been chief veterinary officer in the Transvaal, and you have served in the Indian Civil Veterinary Department in India?—Yes.

990. May we take it that you are well acquainted with the needs of the public veterinary services, or at all events in those branches that you represent here to-day?—I have my own ideas, but I would not like to assert that they are the correct ones. That is the way I would like to put it.

991. We may take it that you have had considerable opportunities of forming an opinion from facts you have observed and that have come to your knowledge?—Yes.

992. What we are specially anxious to know, if you can tell us, is whether with regard to the appointments in these various Government departments, you have found any difficulty in securing the type of men you want to fill the most important appointments—I mean a type of men as regards their training?—I think I

must say that I have. I have had to find them for our own department—that is the Board of Agriculture—and I have had to find them for the Colonial Office, and I may say that, within the last six or eight years, veterinary requirements have gone up as it were tremendously. The Colonies have asked suddenly for many men trained above the ordinary, and, of course, it was only to be expected that we would have a certain amount of difficulty in finding them. We have now had some six years of that, and there is still the same difficulty.

993. That would apply to the Colonies and the Board of Agriculture?—More particularly to the Colonies. But we find a difficulty with regard to the Board of Agriculture, too. We can get the ordinary man, but when we want a man or several men of special qualifications we find it very difficult to get them.

994. We may take it, may we not, that quite good work has been done in the veterinary colleges up to a certain point under the system at present adopted?—Yes, and up to a certain point. I do not think it is the fault of the colleges. I cannot altogether say that it is the fault of the students either. What appears to me to explain it really is that until recently there has been no demand for these specially trained men, and they have gone into practice in preference to training, or they have found that looking at it commercially they can get on well enough without going further in their education.

995. Bearing in mind the kind of men you get now under present conditions, and the kind of men you specially want for these Government departments, could you express any opinion to us as the kind of training that would be desirable beyond what they already have?—Perhaps I might take the Board of Agriculture as an example.

996. Yes. We will take them seriatim. Will you take the Board of Agriculture first?—On that point, perhaps you will allow me to refer you to the fourth heading of my précis. I say the needs of the Board of Agriculture and Fisheries in relation to veterinary officers are two-fold, both of which require special training—veterinarians specially trained in all the various subjects which are grouped under epizootiology, and veterinarians similarly trained with an additional training and aptitude for research work.

997. There are two types of men that you want: men specially trained in the ordinary scientific branches, and men similarly trained, but with additional training in methods of research and with what you call an aptitude for research work?—Aptitude, I am afraid, is a thing that you cannot train them in; you have to pick the men.

998. Given the aptitude, you would have them specially trained for research work?—Yes. I say that the schools could by post-graduate courses enable men to acquire most of the requirements, but while I think that post-graduate teaching at the schools is absolutely essential for candidates for all the Services, I am convinced that each, and in particular the Board of Agriculture and Fisheries, will have to undertake a considerable amount of training of its own officers during their probationary period, and provide opportunities for the more senior out-door officers to refresh their knowledge.

999. You feel that in addition to the four years' training of the regular veterinary course something additional is required in those cases?—I think so, and I could give you some very good reasons for that.

1000. Perhaps you would give us those just shortly?—The policy of the Board—and it is one with which I agree entirely, and one that I should be very sorry to see put aside—is to centralise dealing with dangerous diseases of animals. The result of that is that unless a man is inside the Board, or unless he is an inspector for a local authority under the Diseases of Animals Act, or unless he is an inspector of the Board, he gets no opportunity of studying the epizootiology of these disease because we only utilise our own officers. We have a very big staff, counting our regular and our accessory staff, and these men, of course, get a very good opportunity to see the contagious diseases and follow out the methods of spread, but the men in practice outside, and men who are not our inspectors, cannot get that opportunity on account of our policy which, I think, from the public point of view, is the best. The material, therefore, for the teaching of these things is to a very large extent locked up inside the Board.

1001. Just two questions arising out of that: first, have you at present, in connection with the Board of Agriculture, any central research or investigatory institution—they are two slightly different things. Have you any central institution for the investigation of disease and for research adding to the knowledge of these diseases?—We have one that corresponds to both those requirements. We have a laboratory which has evolved during a number of years, and we hope it will evolve a great deal further.

1002. Where is that?—That laboratory is at a place called Alperton, about eight miles out of London. We have at that laboratory a number of men whom we have trained to routine work—men who become exceedingly skilful in laboratory methods of diagnosis.

1003. They are members of your own staff?—They are members of the staff. In addition, some of these men are interested, like myself, in investigation, and we find, although we may think that the pathology of a disease and all about its epizootiology is well known before we start to try to stamp it out and control it, as soon as administrative methods are applied that questions in connection with pathology and epizootiology arise—things never dreamt of—and those have to be investigated, and we are continually at that work, and we cannot do it all under present conditions.

1004. Have you any difficulty in getting men with the kind of training necessary for pursuing that kind of work—I mean it is partly training and partly natural aptitude. Do you find any difficulty in getting the type of man with the necessary training and aptitude suitable for research and investigation work?—I can only say this, that I have had to train every man I have, and they do very useful work, and I am very much indebted to them—but there is this about it: Several of the men I had to take on were senior men, and I do not think, even given a man with very good intellect and a desire to follow these things, that you can begin to highly train a man over 30.

1005. Would it assist you if you had a limited number of men available who had had a regular scientific training plus a veterinary training and some definite training in methods of scientific research?—Yes, very greatly for certain problems.

1006. That is what I mean?—But these men I should never think of putting on to routine work.

1007. There are two classes of work as I understand, routine, and investigatory and research work, dealing with new problems, or finding new methods of dealing with both?—Yes, "new methods" really defines it. The routine man is working with recognised methods which we know to be reasonably reliable, and he does nothing else but follow these methods. In fairness, however, I ought to point out this about the man doing routine work, that if he has any originality in him he may elaborate, and sometimes does elaborate, a very good modification of that method. If I can get a man like that I do not hesitate, when the opportunity occurs, to take him off routine work, but this routine work is not bad in showing you whether a man means business, as it were. It is very annoying—it is a thing that I would not like to be condemned to be always doing. I had to do it in my time, I did it for months; I bottle-washed for several very distinguished men, and I learnt by it. It is a test of whether a man really means to stick to that sort of work—to put him on to routine work for a bit, and see whether he will stick to it.

1008. May I take the analogy of a profession which one knows a little about—engineering. In engineering, you have the first-rate foreman who carries out the practical routine work of engineering, and you have the highly-trained engineer who devotes himself primarily to engineering problems, and in whose case it would be a waste of time to condemn him to regular routine work?—Yes, but on the other hand you will very often find a man with the least amount of training imaginable who is infinitely superior in originality to the trained man.

1009. The natural genius? — Yes, the natural genius. I must say, although I have every respect for training, that I do think that the amount of training that goes on at present with some of the younger men knocks any originality they may have out of them, and they remain pupils all their lives.

1010. The kind of training given by the man who is distinguished in research stimulates the originality of the mind of the student, whereas the routine teaching does not?—That is it. You will never get your research man by making him attend classes and a routine course, as it were, for years. You will get a high average in your inspectors, but you will not get your research men in that way.

1011. With regard to the work conducted in the laboratory of a man experienced in methods of research, and who wishes to stimulate the capacities for research of the student, that class of training is a different thing?—It is; it is really the association of the minds.

1012. That is stimulating both to the teacher and to the vigorous pupil?—Yes.

1013. Could you give us an example of the kind of diseases you would deal with in any central institution and that you would want your advanced men to take up the study of?—You mean the diseases about which we would institute research?

1014. Yes, it is perfectly familiar to you, but some of us are not very familiar with it?—If we waited until we knew all about a disease before we started to deal with it we would never tackle anything, and there is not a single disease we are dealing with about which there is not something to find out.

1015. I only wanted an example or two of the kind of disease. What diseases do you deal with at present?—We have, for example, anthrax and swine fever and sheep scab. Sheep scab, I might say, is one of the diseases which is typical of a point I raised, namely, that we thought we knew all about it until we started to stamp it out, and when we started to stamp it out we found that there were innumerable very important problems that required to be solved, which would aid us in stamping it out. We have worked on those problems and made a good deal of progress in investigating them.

1016. Is sheep scab due to an animal organism?—Sheep scab is due to an external parasite.

1017. That leads to this question: would it help you to have men who have been trained in a bacteriological laboratory or a laboratory which investigates low animal life—would it help you to have men who have had that training come into your central institution?—Yes, but I hold views on the subject of bacteriology which I would like to explain before I answer that. It has become the fashion in certain places to speak of medical men as bacteriologists. With all due respect to them—I was a professor of pathology and bacteriology myself when I was at the Dick College—I have never believed, and I do not believe, that a medical man is entitled to be called a professor of bacteriology—a professor of medical bacteriology would be the best way to describe him. If you separate bacteriology, as bacteriology, from pathology you raise up a man who is practically of little use, because bacteriology is really a part of pathology. The bacteriological part of pathology is very important, but the important thing is pathology, and what would be of use to us would be to have a number of trained pathologists, which would imply that they were also bacteriologists. They would not simply be authorities on a bacillus in a test tube, for example, but they could tell you what it does in the body under different conditions, which after all, from a medical point of view, is what we want to know. The same applies to animal parasites, but I do think a greater distinction can be made there, because you have the entomologist and zoologist who are in a position to study the methods of breeding these parasites, and I think that we would get to the end quicker if we had such a man. I have been doing a lot of that work myself on ticks, and as I said, on scab, and what I have always thought about it is, that although we can do it, if we had had, say, an entomologist who knew the methods better than we do, we would probably have done it in one year instead of two.

1018. May I just see whether I as a layman follow the point. I understand that pathology and bacteriology go very much together?—Yes.

1019. That is one branch of the subject, but the pathology you require is rather different from the pathology that is taught to a regular medical student?—No, I would not say that exactly. It is more that he would have to know a great deal more about it and know it in a more practical way than it is possible to teach a medical undergraduate.

1020. An ordinary medical undergraduate's knowledge of special pathology is insufficient?—Yes, for this special purpose.

1021. I mean pathology beyond that usually associated with bacteriological work?—Yes, that is, he ought to serve an apprenticeship in a laboratory under a master.

1022. Not simply the pathology that is associated with morbid anatomy, but with the pathology dealing specially with that class of work—I mean the work of pathology in association with bacteriology?—Yes, but I think you will find in practice that they always are associated. I do not know any teachers of pathology—men who are general pathologists—who are not well acquainted with the bacteriological part of it too. There are men who have done very important pathological work who I would hardly call pathologists—that is to say, they have studied one thing only and done exceedingly good work on the subject, but you would not send a man to such a master to learn pathology.

1023. I think there are more than one institution in the United Kingdom which perhaps supply now the general pathology of the medical student and the post-mortem work of morbid anatomy—where that is done by one professor, and another professor takes up special pathology and deals with the investigations carried on by those who are already medical practitioners?—I did not know that. I find that that is a division of work that prevails in the veterinary schools on the Continent. I have followed the evolution of the teaching, and it arose in this way. On the Continent for a long time they did not have chairs of pathology, and when bacteriology came along as an important thing they immediately established chairs of bacteriology, chairs of pathology came later. In this country, morbid anatomy, and, what you may call, general pathology have been taught for a very long time from special chairs and have always been given a great deal of importance. Then bacteriology came later. The continental schools were away ahead of us as regards bacteriology and had chairs of bacteriology long before we had them. Curiously enough our British veterinary schools had chairs of bacteriology and pathology both together and they were established in connection with the curriculum before any of the medical schools adopted bacteriology. We began just at the right time as regards bacteriology and pathology.

1024. With regard to that division, if a division exists, between what I may call the medical undergraduate who takes general pathology and morbid anatomy; and the other man who takes bacteriology associated with pathology, which of those two men has the best training for what you require? I do not know if I make myself clear?—Yes, I quite understand, but I cannot bring my mind to separate medical bacteriology and pathology, especially with regard to research, because you find sometimes that you can go straight to a disease and, as it were, lift the microbe out of it. On the other hand, you may fail and you may still suspect that there is a microbe. Then you have to get at it in a more difficult and a more indirect way. You begin, for example, to study the morbid anatomy of the disease.

1025. Really for research purposes both are necessary?—I would not like to have a man on general work who was not a pathologist and bacteriologist.

1026. You would have both?—Yes; and similarly, if I may refer to parasites, a biologist and helminthologist may greatly help you with the cultivation of the parasites outside the body. That may be important, and I think it often is important, because you have to consider in epizootiology the life cycles of parasites or their intermediate forms, and he may help you in that way; but you cannot divorce the work from the pathological side—how does it get into the body, what happens when it does get in, and how is it to be got out? If you use a man who is only a biologist there must be collaboration with somebody else, and if you use one who is only a bacteriologist he must collaborate with somebody else.

1027. You really want a man who has not only had pathological and bacteriological training, but, if possible, some zoological training also?—Yes; but I think in relation to the zoological part of disease it would be a good thing to have an extra man who is a biologist or zoologist.

1028. He would be rather a biological and zoological specialist, and the other man would be a specialist in bacteriology plus pathology?—Yes, and then they must work in collaboration.

1029. Would it be any advantage, in your opinion, if you could get a certain number of men who had already, before taking up their specific veterinary work, had careful scientific training such as is given for university degrees; I am speaking now of the early, not the later stage?—I am afraid that will always be a debatable point. It is a thing that has been widely discussed in educational circles, not only veterinary but medical as well. In the first place, perhaps I might say that if you take any professional degree or qualification, the man who takes it knows nothing more than his fellow students. You may get a man who knows the elements better than another, but, remember, in the case of an undergraduate or a man who has just graduated you never, in any of these subjects, get what you call a post-graduate knowledge. He is ready to begin the serious investigation (if he is going to be an investigator) of his profession or of his subjects. Well, now, we take this man; let us say he is a doctor, or a man who has qualified as a veterinary surgeon. We take the doctor and we send him to a veterinary college, and we take the veterinary surgeon and send him to a medical college. Both of them learn the elements of another profession, and on the top of that, if you are going to make them investigators, you have to give them a further scientific training.

1030. It is rather a practical point in this way: is it worth while, in your opinion, to take steps to get a certain number of scientifically trained university men, men who have been through a university science course, and let those men go on with specific veterinary training, and possibly follow on with some post-graduate work after getting their veterinary qualification—is it worth while to take steps to get that type of man; that is putting it quite baldly?—You have now put it a little further; you have said a man trained in science.

1031. A man who has gone through an ordinary university course and, perhaps, taken chemistry or physiology or biology, and taken his degree?—And done nothing further?

1032. Is it worth while to try and get that foundation to build upon with a view of getting the best type of man for your job, or is it not really worth while?—I do not think it is really worth while. If you could get the man who has taken a science degree, or a degree in something connected with the science of biology, and who has also been trained in these methods and has done a post-graduate training as well in science—I mean post-graduate in the widest sense—I believe that man would be worth getting, if you could get him, but I am afraid that you will not get him.

1033. Do you think you would get a better article if you tried to get them?—You would have to select them. That brings us back to another question, because it is rather complicated with others. You can get exactly the class, if you select them, from the veterinary colleges, but, as I thought I would probably have to point out later, this is what happens. All the services and practice are competing against each other, and the most attractive, I think, from sentimental and other points of view, is the Army. The class of man that I take it you are aiming at is a class of man not only of superior education, but to a certain extent with the superior kind of intellect that education alone can give, and that class of man is attracted to the Army. It is a better position from his point of view, and he is an officer. I think you could find those men if you could attract them, but the other attractions at present are greater.

1034. The question is whether they would be the best article, from your point of view, if we could attract them?—I am inclined to think they would, because a man of that class who has entered first of all into the veterinary profession cannot have gone there unless he has a great love for it. I remember the first veterinary college I went to. I had not been there a week before I really had a desire to walk out, and I know other men who felt the same. Of course, things have improved tremendously since then in respect to the class of men that come, but I still think, given all the social obstacles or the social inflictions, which do not affect me but do appeal to some men, that a man must have a very great liking for the veterinary profession to come into it unless he can be assured of a good billet. Men, not only in this country but in other countries, have told me, talking about their families, "My boy " wants to be a veterinary surgeon, and I would make " make him one if I could be sure that I could get " him a first-class billet afterwards."

1035. To enable you to achieve your idea of the best training for the kind of special men we have been talking about, would this course of training be good, or do you think it is not worth while taking the trouble to bring it about—a man, we will say, who has taken his degree in one of our universities, Cambridge, for example, in biology, then that he should go to a veterinary college for a somewhat shortened period, because, of course, it would not be necessary for him to repeat the subjects he had taken before, such as chemistry and such portions of physics as they take. Supposing a man has gone through that course, and then gone through a shortened course at the veterinary college, followed by some post-graduate course in research and post-graduate training under a competent teacher dealing with that subject or subjects closely allied—do you think it would be worth while taking the trouble to try and attract such men?—I would be very loth to say that it would not be worth while trying.

1036. If practicable, would that be an ideally good thing with a view that those men should have an opportunity of taking up appointments suitable for men who had undergone the really very elaborate training of that kind?—You mean appointments in relation to research?

1037. Yes?—As I said, I should be loth to say that that would not be worth trying. I think probably it would, but I must point out that, whatever you do, it has been the problem for ages since ever they began to think about making research men, you cannot get an ideal method of training a man as a research worker. It is the man you must find. And, as I say, one man with even less knowledge than another will do far better research sometimes. He may not become a great master, but after all we only get masters born once or twice in a century. The other men do very good investigation work, but then, even in their case, you may have to design the work for them, and it is the designer that is important. A class of man comes to me continually, and to other people, and says, "I " would like to come to the Board of Agriculture. I " have always had"—some of them say—"a soft side " for research"; or, "I have always had an inclination " to follow research," or, "I have a strong leaning " towards the scientific side." I would never take that man, he is an ass, and does not know what he is talking about, but he means well, and what you will if you take him get is a mediocre man; there are dozens of them; their place is not in research.

1038. I am speaking now of what I put as a possible course of training—of the man who has been through that mill and who has been tested to some extent?—That is another matter, of course. In that case you will have to take a man—and I see no objection to it —who is not a junior, who has got up to about 30.

1039. Supposing he went, say, at 17 or 18 and is able to take his degree in three years, and he then went for three years to a veterinary college, he would be, perhaps, 23 or 24 before he took his post-graduate course either at a veterinary college or partly at a veterinary college and partly at a university where they did work of the kind. Do you think it would be worth while trying to attract men of that description?—I should be sorry to condemn a scheme of that kind, but I must say I think there is a better one.

1040. Would you tell us what in your opinion would be a better method of training for the man you require?—Every form of training, of course, has its good points, but, taking it all round, I think the best way of training them would be to take a boy of good education who goes to a veterinary college——

1041. At what age shall we say?—He would go at 17 or 18. Nowadays it is about 18, because the preliminary examinations require that a boy stays a good time at school or with a tutor afterwards. He goes to the veterinary college because he wants to take up the veterinary profession, but as he goes on in his studies he thinks, "I do not know that I would like to be a "veterinary surgeon and nothing more." Many of them go with the express intention of being nothing more, and yet they take a science degree as well, and others go intending to do both. The great advantage of that is that in at least two of the universities now, and I think the others will follow suit, he can take his veterinary course and a degree in science in five years, taking the two together if he is an able fellow, and it is almost always the abler men who go in for the Bachelor of Science Degree. With one year's extra work he can become a B.Sc., say, of London University, which is admitted to be a very fine degree so far as degrees carry you.

1042. That applies to Edinburgh, too, does it not? —Yes, they have introduced the same thing in Edinburgh.

1043. It could be made to apply in Dublin also?— Yes, I believe, in Dublin; and all the other places will follow suit I have no doubt. The universities were very conservative for a long time, and would not open their doors to this sort of student.

1044. It would apply in cases where the veterinary college is affiliated with the university?—Yes. Where there is not a veterinary college and a university he must do the two separately, and that would take about seven years.

1045. It might reasonably be reduced to six?—Yes, it might be reduced to six, quite reasonably.

1046. So that the two things are not mutually exclusive at all?—Oh, no.

1047. From what you say in your memorandum I take it that you do not think it desirable that the number of teaching colleges should be increased?—No, I think somebody should interfere with a firm hand, if they can, and reduce them.

1048. There are now five?—Yes, five in the United Kingdom.

1049. How many colleges do you think the United Kingdom requires?—I think probably two would do, but for other reasons you probably would have to have one in each of the three countries. That would be more than ample.

1050. That may be outside our present inquiry, but the two methods are not mutually exclusive—taking the science degree concurrently and taking the five years' course which it would be, would it not?—Yes, it would be a five years' course with the science degree.

1051. Or taking the science degree followed by veterinary training, that would be six years?—Yes, probably; if there was a reduction in the curriculum at the veterinary college in the case of such men, which I can see no reason for objecting to.*

1052. Either of those courses of training would be a good training to build upon, anyhow?—Yes, I should admit that at once.

1053. And worth while taking some trouble to secure?—Yes; but there is something you must keep in your mind. I did not quite finish what I meant to say about the man going first to the veterinary school. I said it for a reason. If he goes there, and then goes on to science because he likes it, he goes on his own responsibility, and you take him if he is the kind of man you want; but if he goes to science first, you have to go and select him, and say: "Will you go and take to the veterinary course?" and you are thirled to that man for life, as it were, whether he is a failure or a success.

1054. In the case of the one man, it is his own voluntary choice from the beginning?—Yes, and you can throw him aside if you do not want him, whereas with the other man you cannot. But I think it is a good training, although, as I say, you would want to employ that man for science, and there is no reliable method that has ever yet been devised for training a scientific man. You might get a man who would be quite useless to you although he was highly trained.

1055. Going from that to the later stage—after the veterinary qualification has been obtained—would you think it desirable to provide and encourage some additional work after taking the veterinary qualification plus the degree in those cases where the degree has been obtained? What would you suggest after that? Do you think that is more important for us to aim at than to trouble about the earlier stage?—The earlier stage is very important, because you will find, if you try to work post-graduate teaching on to a man who has been badly taught the elements, it is a waste of time; he is simply mystified, and is worse than he was before.

1056. Taking the preliminary training as you have given it, and going on to what I may call the final part after that, what ought to be added beyond the veterinary qualifications for the type of man you want?— That is the teaching? You cannot teach a man, as I say, to be a researcher.

1057. Teaching is a rather misleading phrase. What should he do before he is fit to take up such an appointment?—A general inspector could take a post-graduate course, preferably, followed by an examination.

1058. About how long should that post-graduate course be to be effective for this purpose?—He can do a lot in three months, but he can do more in six months. I think it would be as much as we could expect of him, and get as near to the ideal as practicable politics will allow us, if he did a year.

1059. You say a year, as a maximum, having regard to practical considerations, of course?—Yes, a year of post-graduate teaching. It would not be a year serving an apprenticeship under a master, because that is not long enough in science. But for the ordinary inspector to get his post-graduate work, and for his higher knowledge of epizootiology, a year would be ideal.

1060. And as a minimum to be effective at all what would you say—you say that three months is better than nothing?—I mentioned three months because we have had some experience of it, and it has enormously improved the kind of man who has taken it, but it is not enough.

1061. You say that three months is good, but you would like more than that?—Yes, I would say a year, with an examination and a diploma at the end of it, because unless you put in the examination many of them study in a dilletante sort of way.

1062. If suitable appointments were available for the highly trained men, do you think that men would be induced to go through that post-graduate course without some financial assistance during that year?— Yes, I think they would be induced without any assistance.

1063. Of course a good many men who go into the profession are men of very narrow means, and their education is a great financial strain on the part of their parents, and if financial assistance were given to them to pursue that post-graduate course for a year, do you think that would be valuable?—You mean in the shape of a scholarship?

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* In returning a corrected proof of his evidence, the witness wrote, "I should have added to this answer that the "colleges and the Royal College of Veterinary Surgeons "might object fairly on the grounds that they would be "deprived of fees which they cannot afford to give up."

1064. Yes?—I do not think I would give a scholarship to enable a man to take a post-graduate course of that kind, but certainly if he is going to train in research, though I do not believe that the students who are veterinary students are so hard up, in fact I know many of their parents are not. Many of them are veterinary surgeons in good positions, making a very good income, and what has operated against men forsaking practice is that a father builds up a very good practice and has, perhaps, one son who has been to the veterinary college, and he says: "Am I going to send this boy "into science, even although he is a very clever boy, "and throw away this practice which I have built up "and which I can hand over to him and which will "produce an income which is quite a good income "immediately I am done with it." What also operates with a lot of parents, and, I think, wrongly, is, they say, "I have brought up my son as a veterinary surgeon, "I am getting a little bit old now, and I would like "somebody of my own flesh and blood to join me and "do my hard work for me in my practice," and they take their sons back to practice in that way. That has operated in the case of two or three men whom I have tried to get for the Board. They told me that their fathers insisted upon their going back to practice, and some were men with the London B.Sc.

1065. In the case of such men, you think that nothing could be done in the way of improving their position which would operate after they have gone through their course?—Yes; I think what I have pointed out must operate in such cases.

1066. (*Sir Thomas Elliott.*) I think it is the case, is it not, that the great majority of the men who enter the veterinary colleges come from secondary schools?—Yes, that is so.

1067. What sort of scientific basis would have been supplied at the secondary schools?—I think very little. I believe in some of them they go through a course of chemistry and physics.

1068. But it would be comparatively of an elementary character?—Yes, but I believe it is allowed to count in some of the preliminary examinations, and looking at it as a thing I did not have myself at school, I think it is rather a good thing.

1069. That would imply that a considerable amount of what one may call scientific training would have to be given in the veterinary colleges?—Yes.

1070. There are teachers in the principal scientific subjects employed in the veterinary colleges?—Yes, that is so.

1071. Do you think that it would be desirable that steps should be taken to recruit the veterinary profession in some measure from men who have received a more complete general scientific training at the hands of the professors of the various sciences at the principal universities?—Yes, that of course is what we have been discussing and to which I have given a qualified answer already. I cannot get the idea out of my head that there might be some advantage in doing so, but, as I say, I am held by the other idea that there is perhaps a better way of doing it. But I cannot deny, and I do not wish to deny, that there would not be certain advantages in bringing these men into the veterinary profession if you could get them—that is to say, you are going out of your way as I take it you mean—to get a kind of man who has never come into the profession before, and that the influence of these men would probably work for good.

1072. You understand, of course, what I mean when I speak of universities. I refer not by any means only to Oxford and Cambridge, but to all the modern universities, and to the Scottish universities?—Yes.

1073. Do you think it would be possible, by means of a system of scholarships, to attract to the veterinary profession, and particularly to the appointments in the public services, men who had received their general instruction in science at one or other of the universities, and who, if they were given the means of obtaining a veterinary qualification at the colleges, would choose that profession in larger numbers than they do now?—I think you would almost certainly get some if you offered a scholarship to pay their fees, as it were.

1074. Does it not strike you as being very desirable that this profession, scientific and professional in character, should receive as large a proportion of men who have had the advantage of an extended general education as other professions?—Of course, judging from my own experience of school life and of university life in big cities like Edinburgh and Paris, I must say there is an advantage in that—in this way, that when I went to Paris I found myself as a junior associating with very senior men as students, and I must say that that association operated for good. These men were still students, but of much more mature minds—but I do not know that, theoretically, it must operate in a general way.

1075. I am not sure what your word was, but I think isolation will express my meaning—does it not occur to you that that social isolation to which you yourself referred, would to some extent be avoided if a substantial number of members of the veterinary profession worked together in the same laboratories and attended classes under the same professors, as members of other professions do?—Yes. Take Edinburgh, which is one of the places I know exceedingly well, they have a way of bringing up students there that I am entirely in agreement with, but as one of my first public school masters, Sir James Donaldson, said about it, he said: "You know it is a very good system"—I have always remembered this, because I have realised it since—"it is a very good system, it "makes men of them, but a great number of them are "spoilt in the making." In Edinburgh the medical and veterinary students all lived out—outside their colleges—but in some of their classes they were all mixed up together and talked about their work. Sometimes a veterinary student went to the hospital and sometimes a medical student came down to our classes. I do not know that it operated to any very great extent, but I believe it will operate in post-graduate work where you get your graduate in medicine and your graduate in biology and your graduate in veterinary medicine, and put them into a laboratory together to work. I believe that will operate, and operate very successfully, in the direction that you suggest.

1076. I do not quite understand in what way the post-graduate work would bring men together into the same class-room and into the same laboratories. The post-graduate work would be given in the veterinary college, would it not?—I did not mean that kind of post-graduate work. I meant post-graduate work for research where they would be working together under a distinguished professor in his laboratory.

1077. Would that post-graduate training not take place at the veterinary college?—I should think it would be very seldom entirely at the veterinary college—occasionally it would be—and it would not be at any one particular university. It might be abroad. It would be, as I said, when I went to Paris, I found a number of men looking for exactly the same kind of training and knowledge that I was.

1078. (*Chairman.*) Research work goes on better where the students in allied subjects work together and exchange ideas?—Yes, I think so. It is a very much better training than post-graduate tutorial education, so to speak.

1079. (*Sir Thomas Elliott.*) As far as I understand your ideal it would be that the veterinary profession should be recruited, as it is now, from the secondary schools, that the recruit should follow the usual curriculum in order to obtain his professional diploma, and that then he should be selected in order to engage in post-graduate study somewhere else?—Yes, not exclusively at the veterinary schools. But let us take our scholarship system. That may last three years. They may go to the veterinary college and then they may have to go abroad. They may, of course, go to any place in England, and if I were directing the scholar I should send him to Manchester or to London, or to Cambridge or to Oxford, or wherever the desired master was, because many of the professors at colleges and universities are good teachers but not masters—not the men you would select to train research men, Then after their training in England they might go to a big institute like the Pasteur Institute, in Paris, where they would not only meet men who are studying in every kind of biological and medical science, but men from every country in the world, and that association is useful to them. That is the way I should train them for research.

1080. (*Chairman.*) For the research men a stimulus is given to their minds when they are under distinguished directors, plus the social advantage of meeting and associating with men in other walks of life which makes the men more fit both practically and socially?—Yes, I think it is a great mistake to put a man training for research under one master only. I know that is the system that is usually carried on in this country, but I give it as my opinion that it is a wrong system.

1081. (*Sir Thomas Elliott.*) You are speaking now of the men, as I understand it, who are to be engaged specifically in research work, but to take the men who are to be engaged in the work of general administration, the work upon which many of your lieutenants are engaged at the present moment, do you not think it desirable that at some stage of their career they also should have the opportunity of coming in contact with members of the other learned professions?—Yes, I think that is so. I must admit that putting them into a technical school, as it were, although they learn their actual business or profession better perhaps, yet it has a narrowing influence on them in the human sense. On the other hand, I would not like to say that that applies to the veterinary profession alone. In the medical profession they are grouped into classes apart too, and if the classes could be taken so that the students of both, and other, professions would all be mixed up together and taught together I think it would be a very good thing.

1082. (*Chairman.*) Outside of London the medical student takes part in the whole of the social life of our Universities, just as the men who are going into the Church or the Army or the other learned professions do?—Yes, that is so. In Glasgow and in Edinburgh, which I know, the veterinary students do also, but, of course, in every university and in every big collection of men you have cliques. You have men there who are all middle-class men, but yet there are degrees of middle class, and you have also the men who are football men and at the same time working-men, and they form a clique among themselves, and you get little societies of that kind, but yet at the same time they are all mixed up together.

1083. (*Sir Thomas Elliott.*) When you say they are mixed up, the classes of course are entirely separate, are they not?—I cannot speak with authority on that, but in the case of the medical classes, to take chemistry, for instance, I think the medical students only take classes in chemistry which are specially provided for themselves.

1084. (*Chairman.*) In some colleges they take specialised chemistry in the third year, and in that case they take it all together?—I would not like to speak with authority about it, but I know that is so in some cases with regard to chemistry and also to biology.

1085. (*Sir Thomas Elliott.*) You would agree, I suppose, that the specialised training should follow the general training?—Oh, yes.

1086. Would not one of the advantages of endeavouring to induce a certain number of the most promising men of their year, men who have taken science degrees at the universities, to enter the veterinary profession, be that they would be trained specially in veterinary science after having received a good general and scientific education?—Yes, I must admit that there is an advantage in that.

1087. Coming now to the training of men for the veterinary services in the colleges themselves, do you think that with additional means at the disposal of the colleges the training could be improved?—I think it could be vastly improved, and I would like, if you will allow me, just to give some of my views with regard to that for the consideration of the Committee. I think that the schools need assistance for the general teaching ——

1088. For the general scientific teaching?—For the general teaching of the man who is going to take the diploma and go into practice.

1089. You will understand, of course, that we cannot go very far afield. I only want to elicit your views as to the training in the colleges of the men who are going to be employed in the Government services, which is the limit of our reference?—Of course, the man that we would ordinarily take would be a man who is well trained in the elements plus a post-graduate training, and I think that one of the things that is required in relation to education is to have a much larger number of assistants helping with the teaching. He wants a little more special teaching —personal teaching, as it were—than the colleges can afford to give him. Then as regards the post-graduate training. I do not think that a post-graduate training such as we require for our men can ever pay any school to give, and I think, therefore, that it is essential they should have some financial assistance.

1090. Speaking now entirely of the ordinary curriculum of the colleges, which means at least four years, and which, after all, is a very considerable period in the life of a student or of a man even, do you think that if more means were at the disposal of the colleges those years could be employed to greater advantage?—I think they could, but, as I say, it would be in the extra teaching, the personal teaching, that the students should get.

1091. Apart from any question of money, which, after all, is not a matter upon which you need form any particular conclusion, what would be your ideal scheme by which the Government services that we represent here to-day could obtain the best possible men for their work?—As general inspectors?

1092. For general administrative work; I will leave out research work and such work as requires the natural genius of which you spoke?—Leaving research out?

1093. Yes, leaving original research out?—Well, I think the best conceivable way is the course for the diploma followed by a post-graduate course of a generous description, and that followed, I think, by some examination — not necessarily a degree. A diploma has this in it, that they have to pass an examination, and that examination can be taken as a proof that a man has done a certain amount of work. I think that would be a very good thing.

1094. (*Chairman.*) Could you define this "generous" course of post-graduate training? I like the phrase, but could you define it a little more for us?—Well, laboratory work. If a teacher takes a class of, say, 20 or 30 men in a lecture room and simply reads off notes to them and gives explanations, I do not call that generous. By a generous course I mean practical lectures properly given and properly illustrated, followed by practical teaching in a laboratory by assistants who are at the man's elbow, and who can say to him "That is the way to do it," and who will really make him do it for himself, and then give him a bit of work to do absolutely by himself to see whether he has learnt or not, and if he has not to send him back for more instruction.

1095. Where could that training be given best, in your opinion?—In veterinary subjects I do not see how it could be given outside the veterinary colleges, because they have got all the material, and you want a vast amount of material to teach with.

1096. (*Sir Thomas Elliott.*) You recognise that by that system you practically exclude from taking up appointments any men who desire on their own behalf, or whose parents desire for them that they should have a completed education including a university course? —I would not like to tie myself down to take only such men. I say only that if you apply that system you will find it will give you the best average results, but I should be very sorry to tie myself down not to take a man who had not this diploma even if he had no university degree, because we might find a man with his diploma, and, let us say, 200*l.* or 300*l.* to spend on completing his education, and he may be a man of some original turn of mind, and may say to himself:

"How can I best spend this? I will go and work with "professor so-and-so in the Pasteur Institute, and then "I will go to Berlin and work with professor so-and-"so." That man will spend a year or a couple of years in that way, and although he will come back with no diploma at all yet he may be a very much better man than any of the men who have taken their diploma. I would not, therefore, like to tie myself down to take men trained on my suggested system only, or to exclude the University men at all.

1097. Is it your idea that the veterinary colleges should be recruited as they are now practically entirely from the secondary schools, and that those men having had their secondary school education and gone through the veterinary curriculum should, if they showed a capacity for further work, undergo some post-graduate teaching?—I think that is good, but, on the other hand, if you go to the Universities, and let it be known that you are prepared to send these men to the veterinary colleges you may get a bigger selection to choose from and get the better brains. I would not like to deny that, but I think it is probable that you will have to choose your men in every case.

1098. Or rather he will offer himself, will he not? —He will offer himself, but you will have to enquire about him. I think you would get quite a number of men who would offer themselves, but who would prove to be quite unsuitable.

1099. No doubt, but, on the other hand, we should secure for the veterinary profession and for the Government services a certain number of men who, as I say, either desire for themselves or whose parents desire for them, a completed education including a university course?—Yes.

1100. You are, of course, very familiar with Scotland. You would agree, would you not, that many a young man in Scotland, who is ambitious and anxious to make his way in the world, wishes to receive a university education and that he does, very often at the cost of great sacrifices on the part of his parents, go to Edinburgh, Glasgow, Aberdeen, or St. Andrews as the case may be?—That is so.

1101. Some of those men would be almost ideal recruits, would they not, for the veterinary profession, being brought up as they very often are in the country amongst farmers and farm animals?—Unless it has changed now, the ambition of that class of man used to be the Church always. He is not attracted to the veterinary profession. We can get at it in this way: I know of only two Masters of Arts who have come voluntarily as recruits to the veterinary profession, but I daresay you would get more if you offered them something.

1102. Do you think that the offer of, say, 150*l.* a year for the three years would just be sufficient to induce men of that type—men who have completed their education—to take up veterinary work preferably with a view to public employment who otherwise would drift into other professions?—Yes, I think that is so.

1103. I think you have had some experience of the research scholarships that the Board have offered, especially for veterinary work?—Yes.

1104. What is your view as to the possible extension of that scholarship system?—Do you mean increasing the number?

1105. Yes?—I think the training in pathology is excellent and that these might be increased, because he has to go through a training in the whole subject. In the other cases he may simply train in one thing. He may be going to work for a couple of years at, say, producing yellow eggs, or something like that, but as regards pathology I think it would be splendid to extend it.

1106. You know that two scholars have already been appointed to the veterinary college at Camden Town? —Yes.

1107. Do you think that the number of scholarships of that character so held for veterinary work could with advantage be increased?—I think that in that way you will solve the one problem that is most difficult —that is, where to obtain our research men. I do not say that they will all turn out to be Pasteurs or Kochs, but they will all be useful men, they will all be men who, under a director, will make excellent assistants and do excellent work. I know two of them at least, from what I have seen of them from coming in contact with them, who will certainly do original work. I shall be greatly disappointed if those men do not in the next ten years come forward as men working on their own, men who do not need a director and men that you can put to do a piece of work, and they will do it themselves, instead of somebody having to draw out the whole problem for them and being the architect, as it were. One will be able to say to them: "Please, do that," and they will do it for you.

1108. To sum up the purport of the answers which you have given as regards administrative work in the public services, you would certainly not be unfavourable to some arrangement which would induce a certain number of men who have taken an ordinary science degree at the universities to receive a special veterinary training with a view to employment in an administrative capacity?—No, I certainly should not be unfavourable to that.

1109. And men of that kind might be trusted to hold their own, not only in connection with their professional brethren but with other professional men and medical officers of health and other people they might meet in the course of their professional duties?—I quite think so. That is a point I did not elaborate, although I noted it in connection with our inspectors as one of the requirements necessary. In the service, of course, one of the attractions that brings the men in is the pension, and they come very young, you have to take quite junior men in years—in the early 20's—and yet what is required is a man who is fit to go out and talk to a practitioner or inspector who is old enough to be his father, and that he can only do if he has had special training.

1110. He would be better fitted for that side of his work if he was a man of completed education, as we say, a man who had taken a degree at a university, preferably a science degree, and who had then gone on and obtained his veterinary qualification?—Yes, more a man of the world, as it were.

1111. Yes, that kind of training would enable him to hold his own among his other professional brethren, although he may not have had the special opportunities of studying particular diseases, and so on, that they may have had, yet he would be better able to hold his own with those men and with members of other professions with whom he happened to come in contact?— I think that is quite so, but again, as I say, it is always a question of selection.

1112. Yes, but we have to choose our charmer. You know the old proverb, "How happy could I be with either." We have to make some recommendations?—Yes.

1113. I gather that you would not be at all opposed to the view that administrative officers might very well and usefully be recruited in that way?—Yes.

1114. Then, as regards the college courses, I rather gather that you think that in order to get the men we want in the public services it would be very good business to expend more money in improving the colleges themselves?—Yes, I think that is so.

1115. Then, again, you would say that in the case of men who are destined for research it would probably be desirable to take your men from the colleges just as they now are and where you have got the right sort of man to spend some money upon him in order to enable him to train specially in some suitable institution, either in the college or in some other institution, for the research work upon which he was ultimately to be engaged?—Yes, I should like that to be varied. For instance, I know what a man could learn in our own laboratory, which is a very varied investigation laboratory, but it can never be so varied as a teaching laboratory where they have to go through from A to Z. I should not, as a rule, like him therefore to stay more than a year in one place during his training stage. I should want him to go to Paris or to Berlin, or wherever the particular master that was necessary for him was to be found, not necessarily abroad.

1116. By that time he would have received a definite appointment, would he not?—No, I was talking more of a scholar. Take, for instance, the case of a scholar who goes and trains in the laboratory of the Royal Veterinary College. I do not think that he should be allowed to stay there for three years. He might also have a certain amount of training at our laboratory because we have exclusively certain material—I would not keep him there all the time, perhaps only for six months or a year.

1117. It would depend a good deal, I suppose, upon the individual and the particular work that he was inclined to do?—Yes, if he were a helminthologist I should say to him, "You had better go over to Paris "and study for not less than a year under Mesnil," or a man like that.

1118. (*Mr. Drake.*) You have served in India for some time, have you not?—Yes, for some 16 months.

1119. Would you be willing to give me any opinion about the conditions of the Service in the Indian Civil Veterinary Department? There is one point I should like to make clear. You have been distinguishing between research workers and general inspectors. In the Indian Department there are also teachers in colleges?—Yes.

1120. Under which class would you put those?—I do not think you get a good teacher unless he is a man capable of doing a certain amount of research. I think you would have to class the teacher as a research man.

1121. In his case, do you think he would require some two or three years' additional post-graduate training?—Yes.

1122. As an ideal?—Yes.

1123. Of course, as we know, the men in that department have not had that training?—Some of them have. I know the colleges in India, and I can speak as to them, and they are very good colleges, but their primary purpose is for training natives for subordinate services. He can never enter the higher branches of the Service, so he does not require the same high-class teaching, but even for the lower teaching of men of that kind I think you still require research men. As regards the Indian research men, the department a few years ago—it was after I left—had the question before them, and after a great deal of consideration they decided to choose what appeared to them to be the most likely men, and send them home for training. They selected two men and sent them home for three years, and I believe that cost them about 1,000*l.* a man. They sent them not only to this country, but to Germany and to France, and to America.

1124. Do you think that system is equally as good as the system you propose for the selection of research workers, that is to say, to give them their training before sending them out to India?—No, I should give them their training before sending them out, for this reason, that with all due respect to the men they select they take them too late in life. You cannot begin on a man who is, say, over 30 to make him a researcher when he has not been specially trained before that. When he gets to 30 he should not be a pupil, but should be beginning to do a little work on his own. I think that is really where that system breaks down.

1125. As regards the post-graduate training of others than researchers—the superintendents, who do administrative work—do you think it is essential that their training should be given them before going out, or do you think that the system of study-leave, which the Government of India grant for the purpose of enabling those men to come home to this country and take post-graduate courses, is a good substitute for what you suggest?—Study-leave is good under the present system of post-graduate teaching. I believe that a man, who goes out to India and serves for five years, let us say, and then his first leave becomes due and he comes home here and takes a post-graduate course that he utilises that post-graduate course very much better—but that is on account largely of the post-graduate course. I think you could devise a sort of mixture, as it were, of the two systems, and I think that under the conditions of service in India you are enabled to attract men with more than the ordinary qualifications, and if there was a post-graduate diploma showing that a man had done more than the ordinary work I think you could probably insist on getting those men unless you could find a man who had not got it but who was even better qualified. But over and above that, when a man goes out to India he is more isolated than he is in this country as an inspector, and I think that every few years he needs to come home and wants to come home to rub himself up a bit by attending a post-graduate course again, and by taking a special course to suit himself. He should then be old enough to choose the kind of teaching he wants, and that is what most of them do who do it. They come home and they make up a course for themselves.

Mr. C. CUMMINS CHERRY, B.V.Sc., called and examined.

1126. (*Chairman.*) I think you are Veterinary Inspector for the Commonwealth of Australia, in London?—Yes.

1127. Your appointment does not cover New Zealand, I suppose?—No, only Australia.

1128. You have had experience as a veterinary practitioner in the Colonies, I think?—Yes, I was in practice before I came over here some five months ago. My appointment was chiefly to supervise the frozen meat business. Frozen meat occupies the greater part of my time—supervising the inspection of frozen meat.

1129. Do you work in conjunction with the local inspectors here?—There has been a little trouble in connection with frozen meat here, and we found that we could not get the details in the necessary time to assist us on the other side, and that prompted my appointment, and I was sent over here to see what was really wrong and to keep in touch with the medical officers on this side.

1130. You were sent over by the Federal Government?—Yes.

1131. (*Mr. Read.*) Are not veterinary matters dealt with by the separate States individually, and not by the Federal Government as a whole?—The State departments have charge practically of local matters as far as local consumption is concerned, but the Federal Government has absolute control over the exports.

1132. In all matters of veterinary policy the separate States manage their own affairs, I suppose?—Yes, but there is reciprocity.

1133. Can you give us some idea of the strength of the veterinary establishment in each of the States? What number of officials does each employ?—I could not say that off-hand. Victoria is the State with which I am familiar, and I should say that in Victoria the agricultural department had only something like half a dozen qualified men. Of course, they have the administration of the Dairy Act and the Milk Supervision Act besides other matters. They work in harmoniously with the Commonwealth Government, and, in fact, some of the State inspectors are gazetted as Commonwealth inspectors for certain work.

1134. Would there be something like 50 veterinary officers in the whole continent in State employment?—Yes, I should think so. For meat inspection alone there are a great many.

1135. How are they graded, and what sort of qualifications do they possess, as a rule? You have general inspectors and administrative officers and meat inspectors, and so on; into what sort of classes do they fall?—In Sydney and Melbourne we have veterinary schools affiliated with the university, and the research work is done at the university laboratories. Prior to the veterinary schools being affiliated, the research work was done at the ordinary medical schools. The present Director of Agriculture in Victoria is a veterinary surgeon, the Chief Veterinarian of the Victoria Department is a Bachelor of Veterinary Science at the Melbourne University, the Principal in New South Wales is a M.R.C.V.S., and in Tasmania also. There are certain meat inspectors under the Commerce Act, and the remainder of the meat inspectors have certificates of competency.

1136. What percentage of the staff comes from this country? I suppose that it is difficult to say, but perhaps you can tell us quite roughly. Is the percentage a large one?—I could not say. Professor Gilrow is a Glasgow man. The Director of Agriculture in Victoria is also a Glasgow man, but I really could not say as to the others. Of course, the departments are being recruited now from the graduates of the local schools.

1137. How are the members of the staff trained?—As I say, the Melbourne veterinary school and the Sydney veterinary school are now affiliated with the university. They are splendid schools. Some of the staff have other duties in the medical school, for instance, in physiology and botany, and parasitology, and things like that. To get a degree it is a five years' course, but you may get a diploma in four years.

1138. Can you tell us at all what salaries are paid to these veterinary officers?—The Chief Veterinarian in Victoria gets something like 600*l.* a year, in Sydney 700*l.*, and the Director of Agriculture a salary of approximately 1,000*l.*—do you mean the general rank and file?

1139. The different classes?—The ordinary veterinarian gets about 300*l.* to 400*l.* a year. Of course, living out there is cheaper than it is here.

1140. I am concerned more with the Crown Colonies and Protectorates, and I think that one of the difficulties in getting suitable men in their case is the irregularity with which vacancies occur, and I was wondering whether possibly by pooling some of your vacancies with some of ours we might remedy that to a certain extent?—Mostly the recruits come from men who have been in private practice out there; they favour men that have had practical experience.

1141. Are there any arrangements in Australia for giving post-graduate instruction; for instance, in Queensland you must have a good deal to do with tropical veterinary disease?—I cannot say about Queensland, but as a rule the general practitioner in Melbourne takes a course every five years to keep himself in touch. Most practitioners find it necessary to keep in touch with any progress that has been made.

1142. (*Sir Thomas Elliott.*) About what age do men commence their training for the veterinary profession in Australia?—At the later schools younger men come in about 18 or 19, but prior to that the men used to come in about 20, and they were perhaps 30 before they graduated.

1143. What sort of education in general science have they had when they come?—In the later schools they are very good, but the first lot were not so good at all. It was recognised amongst the early graduates including myself, that the profession had not the status it should have, and we got to work and obtained a great deal of sympathy from the medical school, and we got the college affiliated with the university. Prior to that, the veterinary school was just run as a private enterprise under a Government charter, but we found that the profession really had not the status of an ordinary profession and it was absolutely necessary, in order to obtain that status, for the school to be affiliated with the university, and also to get further facilities for teaching.

1144. What does that affiliation with the university mean?—It means that the university took over complete control of the veterinary education.

1145. Is there any scientific instruction common both to the medical and veterinary students—take chemistry, for instance. Does the veterinary school have a teacher of chemistry, or is the instruction which veterinary students need in chemistry obtained from the professor of chemistry in the university?—The students attend the medical school in chemistry. The classes are the same, but in subjects like veterinary anatomy they have their own special teacher, and bacteriology, too, is at the veterinary school, and veterinary medicine.

1146. They learn such subjects as chemistry and botany in common with the university students?—Yes, they learn those in common. Of course, the students are not very numerous there.

1147. It would, therefore, be almost impossible to provide separate general scientific instruction for the very few veterinary students there are?—Yes.

1148. Does that practice fulfil its promise?—Yes, it has been successful so far.

1149. You do not wish to go back to the old order of things?—Certainly not.

1150. I think you mentioned that for the B.V.Sc. five years was necessary?—Yes.

1151. But for the ordinary professional diploma four years only was required?—Yes.

1152. To what subjects is that extra year in the case of the B.V.Sc. devoted?—To the subject of parasitology which deals with parasites, of course, elementary and advanced pathology and bacteriology.

1153. Do you get your fair share of the best trained brains in the country in that way?—I think so.

1154. I rather gathered that you were not satisfied entirely with the old system?—No, we were not satisfied with the old system; we have better facilities now in every way, and better teachers.

Mr. F. W. GARNETT, M.R.C.V.S., called and examined.

1155. (*Chairman.*) You are Chairman of the Parliamentary and General Purposes Committee of the Royal College of Veterinary Surgeons?—Yes.

1156. We have the précis that you have kindly prepared for us, and we have the statement with regard to the constitution of the Council, and also the number of candidates for the diploma and the statistics there given?—Yes.

1157. Also with regard to the standard of examination and how it has varied?—Yes.

1158. The examinations at the affiliated schools are, I understand, entirely in the hands of the Royal College, and are conducted by their examiners?—Yes.

1159. Then with regard to the teaching institutions, I see you suggest the importance of some assistance being given from the State towards the maintenance of the teaching colleges?—Yes, that is owing to the diminution in the number of students since we increased the severity of the examinations by putting on the extra year.

1160. If the number of students was increased you would be able to meet that, would you?—I think so.

1161. But with the existing number of students at present there is a serious difficulty?—There is, undoubtedly.

1162. As regards your experience you feel that the one portal system of examination is the right one?—Yes.

1163. If any such assistance were given would it be desirable to centralise it, or would it be desirable to spread it over all?—Any assistance in the way of financial assistance to the affiliated schools?

1164. Yes?—I think it would be advisable to keep it to a limited number, provided that you could properly equip, say, three veterinary schools.

1165. In the United Kingdom?—In Great Britain and Ireland. I do not think it would be advisable to spread it over a great number of schools. Of course, we have never objected to the affiliation of any school. We have always acquiesced in it and we have held examinations wherever the school has a proper system of training, and sanctioned generally by a charter.

1166. You hold an examination at the five centres?—Yes; but I should like to point out that the loss on the examinations has been very considerable since we have had the two extra centres at Dublin and Liverpool.

1167. Just going to one point, which I think is a fresh one, but which has arisen out of former evidence, would there be any difficulty in this: the suggestion has been made that it would be useful to recruit the veterinary profession to some extent from those men who have already obtained university degrees in science at one of our universities and who would go on to the veterinary college afterwards for their specific work. Would it, in your opinion, be an encouragement to men of that class to come in if you were to shorten the four-year minimum which must now be spent at the Colleges? Have you gone into that question at all?—Yes; I cannot say that as a body corporate we have, though we have discussed it, and it is a very difficult question to deal with, because we are a specialised profession and it is very difficult to say whether we should be able to send out a man fully equipped with our degree with a shorter course than we have at the present time.

1168. What is your first year devoted to?—The first year we might eliminate altogether, provided there is extra study in anatomy. Comparative osteology—ligaments, and bones are taken in the first year.

1169. The first year is chemistry, some biology and some physics?—Yes, and junior anatomy.

1170. A man who has been through a good university course and taken his degree would be a desirable man to get into the profession, would he not?—Yes, we should be delighted to get him and to meet any suggestion for getting him in every way we could.

1171. Would you in that case give him a three-year instead of a four-year curriculum?—Yes, I think so, provided he took his osteology and anatomy in what would be his first year; that is imperative.

1172. You could put those subjects in?—Yes, I think that would not overload it.

1173. That would shorten the course by one year?—Yes.

1174. I see you advocate the establishment of a further diploma after qualification—after further work?—Yes.

1175. That diploma would only be given to those who had gone through some course of study or research after taking their qualification?—That is so. I do not think you want to restrict yourself as to the places where that work might be taken, provided there were competent teachers and plenty of adequate equipment.

1176. You would like to feel that they would be at selected institutions, but without any restriction except for the purpose of securing efficiency?—That is all. For instance, the medical school down here at the East India Docks, for certain men would be a most valuable course. The tropical school in Liverpool would be a very valuable course for another type of men. Men in their post-graduate training would aim at some specific work, and they would take it wherever they could best get it, whether in England or France or Germany, or perhaps it might be in Egypt.

1177. You would allow a pretty wide field in the scope of examinations to meet the various requirements?—Yes, I think that is desirable.

1178. And also in the scope of instruction chosen?—Yes.

1179. As you know, the question that we are inquiring into is the supply of properly trained men for certain definite departments of State. Have you any definite suggestions that you would like to make on that point of securing an increased supply of the type of man that we might call the most highly trained for the higher public appointments?—It is by the giving of sufficient money in the way of scholarships, I think, for the post-graduate year that we must aim at efficiency in the public services; but outside what I might call the specialised work we have the ordinary work, say, of meat inspectors and work of that description. These men do not require such an expensive training for that kind of work as they do for what you might call training for research.

1180. Where would the special post-graduate training for meat inspection be given?—I should think either here in London or at Liverpool or at any of the colleges—or the Manchester University, I should think.

1181. Any place, in fact, where there were the facilities?—Yes, but I do not think those men would require so much training as the research men.

1182. You differentiate the meat inspectors from the men who are going in for the higher appointments?—Yes.

1183. In the case of the higher appointments you would have post-graduate training of a year, I understand?—Yes.

1184. In the case of meat inspectors that would be specialised training for about how long?—I should give them nine months, I think.

1185. (*Sir Thomas Elliott.*) You lay great stress in your memorandum on the necessity of maintaining what is called the one portal system—the single door of entrance. I am not in the least degree inclined to take any exception to that, but I think it would be useful if you would state very shortly why you think it desirable to maintain that system?—For post-graduate study or for the general veterinary degree to practise.

1186. For the general veterinary degree to practise in the first instance?—I think it is fairly obvious that when there were two examining bodies, the Highland Agricultural Society, and after 1844 when we got our charter, the Royal College of Veterinary Surgeons, there was practically a competition for the two examinations, and it was felt that it was not in the public interest that there should be this competition for the students. It tended rather to lower than to raise the class of students that you got. It gave no assurance to the public that there was a standard to be maintained at all, and I think that was recognised in Parliament by the 1881 Act, confirming as it did the previous charters and making it more secure that we should adhere to the one portal system for all veterinary students.

1187. If that view is accepted, as I am sure it will be by a great many men who look into this subject, it will follow, of course, that the college you represent, the Royal College of Veterinary Surgeons, should be in a position to carry on its work with full efficiency, to employ a certain number of examiners, and to make adequate arrangements for carrying on the business entrusted to it by Parliament?—That is so.

1188. Do you consider that you are in a position to do that at the present moment with full efficiency?—No, we are not. We are not financially able to do it. That is the reason why we have got now the present Bill before Parliament which is to empower the Royal College to receive a payment of a guinea a year from each member and fellow.

1189. (*Chairman.*) There is a loss on the examining work and also on the teaching work in the affiliated schools?—Yes. If we could get another 3,000*l.* that money might be utilised not only in developing these other degrees, but in other ways advancing veterinary science by scholarships, and in many other ways.

1190. (*Sir Thomas Elliott.*) The Bill is practically a Bill to enable the veterinary profession itself to provide the funds, is it not?—Yes, to carry out the duties that have been laid upon us by our Acts and charters.

1191. Do you find there is any opposition to the Bill, or do you find that the difficulty is in moving Parliament to take any interest in the matter?—The difficulty is in moving Parliament to take any interest in the matter. The profession itself is practically unanimous in favour of it.

1192. If this Bill were passed it would enable you, I understand, to establish examinations for a diploma in veterinary hygiene and public health?—Yes, that is so.

1193. You think that the existence of that diploma would stimulate students to take the course necessary for obtaining the diploma?—Yes, I am quite sure it would, because the only advanced course that we have now to offer is for the fellowship degree, and that a man cannot take until he has been in practice five years, which is the time during which a man should have been training, really, and although it is a very admirable thing for the general practitioner, it is not advisable for present day requirements for the public services; it is too long a period we feel.

1194. The possession of that diploma would help a man to get public appointments of the character which are now offering themselves to members of the profession?—Certainly.

1195. As regards the fellowship degree, I gather from your memorandum that you are anxious for inducements to be given to students to present themselves for that degree?—Yes, to re-model it in fact, but that again will require an alteration of our charters, which, as you know, costs some hundreds of pounds.

1196. I understand that, so far as the college is concerned, it is extremely desirable to place itself in harmony with these new lines of work, and to adapt its existing arrangements to the increased demands of the public service, but that it is prevented from doing so at the present moment owing to the straitened financial position in which it finds itself?—That is so, entirely.

1197. And that any recommendation we might make which would enable you to perform your statutory functions to a fuller extent—I will not say to a more efficient extent—would be useful to you?—It would be very valuable indeed. I should like to point out what I think is a very important point, and that is, that we do not restrict our examiners to members of the profession. We get the best men we can to examine our students no matter what their profession may be, chemistry, physiology, pathology, and other subjects. We are not restricted in any way in the selection of our examiners excepting that we may not have a member, and we may not have a teacher. I do not know what view the Committee have with regard to that, but we have always looked upon not having teachers as examiners as a point in favour of a high standard being obtained.

1198. (*Chairman.*) You do not bar members of the teaching profession?—No, but he must not be a teacher in the affiliated college that is being examined.

1199. (*Sir Thomas Elliott.*) The teacher must not examine his own pupils?—No.

1200. (*Chairman.*) We are much obliged to you, Mr. Garnett, for the evidence you have given us?—May I say, before I go, that we have some diagrams here that Mr. Bullock, our Secretary, has got out which clearly show the position and how the numbers of students have risen and fallen, and especially in relation to the period when we increased the course. (*Handing documents.*) Our disastrous year was when we brought in the four-year course. Every statistic we can get out points the same result.

1201. The two top ones give the income from the fees, which are as high as you can impose—you cannot increase the fees?—No, we are up to our limit now.

1202. To go beyond the existing scale of fees would be a hardship on the candidates?—Yes, I think so. I think we would rather, as a matter of fact, reduce than increase the fees as soon as we were able to do so.

1203. This deals with the examinations entirely, and not with the teaching?—Yes, that is entirely with regard to the examinations.

1204. The other we are only indirectly concerned with?—Yes. Of course, we get our students through the colleges.

1205. And anything that helps them helps you?—Yes.

Mr. HENRY SUMNER, M.R.C.V.S., called and examined.

1206. (*Chairman.*) I think you are Chairman of the Board of Veterinary Studies of the University of Liverpool?—I am.

1207. In what year was your veterinary school instituted?—In October, 1904.

1208. You prepare students there for the veterinary qualification?—We have from that time.

1209. What number of students per annum do you send in for examination?—I really thought that was more appertaining to the secretary of the Board, and I have not prepared myself with the figures, The secretary, Mr. Share-Jones, has those figures.

1210. Very good, we will take them from him?—I thought I might be useful in giving evidence as to the inception of the veterinary movement in relation to the university prior to and including the initiation of the school.

1211. It would be hardly necessary to go into that in detail. If you will tell us the relationship between the school and the university that would be useful?—The school is controlled or directed by a Board of Veterinary Studies. This board has certain powers similar to other boards, and we are under the Faculty of Medicine. I do not know whether you have one of our calendars?

1212. We have the prospectus?—May I hand you the calendar, which shows the constitution of the board? (*Handing same.*)

1213. Have you many men come into the school who have already graduated in some other faculty, or do they come straight from the secondary schools to you?—They come straight to us. Sometimes a man will enter the veterinary school who will select the medical school afterwards, but they come to us quite fresh. Sometimes we get a student from another school.

1214. Would it, in your opinion, be a useful thing if you could get a certain number of science graduates to come on into the school and take a course of study there?—Quite. I think at the present time we have a science graduate who has entered. He is a man who holds a Bachelor of Science degree, and he has entered into our school.

1215. You go through the four-year course required by the Royal College?—We do.

1216. You also have a diploma or certificate, do not you, for those who have already taken the veterinary qualification?—Quite. We have a diploma in veterinary hygiene which is open to members of the profession. They must have the registrable qualification, as it is called; that is really post-graduate study.

1217. How long is that?—The regulation period, I think, is 20 weeks.

1218. Can you tell, roughly, about the numbers going in for that?—I can only admit that there were a few—three or four.

1219. It involves, of course, some time and expense after taking the ordinary course?—Yes, a very serious one. They have practically to remain in Liverpool, and it is a daily course. It is not coming for one lecture a week; they have actual work in the laboratories, and departmental work under the heads of the departments.

1220. Can you tell us what subjects they take?—They go in for the laboratory course and for tropical diseases, and largely into advanced hygiene.

1221. They work partly under Sir Robert Ross, I suppose?—Yes, and Newstead and Glynn, and partly under the gentleman who is our veterinary pathologist.

1222. Do you know what the men who take that post-graduate course do afterwards—what is their future career?—The services or colonial appointments generally.

1223. The public services?—Yes, the public services generally. A man who is devoting himself to private work does not come, but a man who wants to take up some specialised work feels it necessary that he should have some evidence of further work and study.

1224. Though the numbers are small, can you say whether the results have been beneficial—have you traced the after careers of the men?—Yes, we have several men, I do not know that any of them are of outstanding brilliance or have done much up to now, but they have done very well. Mr. Jones has the statistics.

1225. We should like to hear about that point?—Quite.

1226. (*Sir Thomas Elliott.*) With regard to the question of the capacity of students to take this post-graduate course, do you think that it is very much a question of money?—I do.

1227. Do you think that students would be attracted to post-graduate courses if any special monetary inducements were offered them?—I feel sure they would.

1228. Do you think that the men who took advantage of any facilities of that kind would be men who contemplated public veterinary work?—Yes.

1229. Would you attract any men who intended to take up ordinary professional work?—I think it would attract more men who desired to go out to the Indian Civil, and I think in British East Africa they have quite a number of men—I think it would attract men to go out to those more or less tropical places.

1230. As regards the men who enter the veterinary school, what would be their average age?—I should say under 20.

1231. Much under 20?—I should not think so. I shall have to refer to my friend, Mr. Jones, as to that, but I should think 18 to 20 is the average age. Some men come in from the schools in their 17th year, quite lads. Other men do see some practice before they come into the school, but the majority of them come into the school, I think, as their first business.

1232. I gather from what you have said that practically no men who have taken a science degree in any university come to the veterinary school?—We have only one instance at present.

1233. Does he contemplate a public appointment, or professional work?—A public appointment, I believe. Unfortunately, the regulations of our licensing body will not take into consideration anything which that man has done to qualify for his Bachelor of Science, so that he will have to go through the curriculum prescribed by the Royal College of Veterinary Surgeons and take their examination. He gets no exemption for what he has already done.

1234. Would it be your view that in such a case as that some modification in the curriculum might be allowed?—That would be a question for the governing body.

1235. We understand, of course, that that is a matter with which the governing body is concerned, but we wish to hear what your view with regard to it is, and we can then form our own opinion. Do you think that would be desirable?—I think that it would be desirable. I am a member of the governing body myself. Might I say that we have post-graduate work in Liverpool, and post-graduate work in Manchester, both of which are associated with a definite examination for a definite diploma. We have post-graduate work at another centre which is not associated with an examination for a diploma, but is simply a warrant that the man has attended for so long and has progressed so far. I would like the Committee to be conscious of the educational value of the diploma after an examination, as against a certificate of merely having attended classes.

Mr. J. Share-Jones, M.Sc., F.R.C.V.S., called and examined.

1236. (*Chairman.*) You are Secretary of the Board of Veterinary Studies of the University of Liverpool?—I am.

1237. That is a school recognised both by the University and by the Royal College of Veterinary Surgeons?—Yes, it is part of the University.

1238. You are a Master of Science of which University?—Liverpool.

1239. And also a Fellow of the Royal College of Veterinary Surgeons?—Yes.

1240. We have a précis which you have kindly furnished us with. We might first take the question of the number of students. What number of students have you entering in the year on an average, taking three years, say?—I have drafted my evidence in accordance with headings which were very kindly furnished me by your Secretary, and that point is mentioned in the précis, and I have dealt with it here. Five years was the period suggested to me, but I have taken the liberty of dealing with eight years, inasmuch as that is the period during which the school has existed. The school has only been in existence for eight years. The numbers in the school for each of the eight years are as follows:—68, 68, 68, 66, 66, 60, 47, 42. You will notice that there is a decrease in the number, particularly in the seventh year. This is due to the attitude taken by the University towards repeatedly rejected students with the object of increasing efficiency, otherwise our numbers might have been maintained. This year up to the present we have 40, which is an increase of four on the number for the corresponding period of last year.

1241. That is the total number in the school at the present moment?—Yes.

1242. Can you give us the figures of entries for the last two years—the first year of entry?—12 last year and 11 this year up to date, but there were three or four who entered last year after January.

1243. All those take the regular four-year course?—Yes.

1244. Do you ever get university graduates—we have heard of one case from the chairman of the Board?—I deal with that question fully under the heading of "Type of Student," No. 3 in the précis. The type of our students during the early years of the school history was distinctly poor. The majority of our students were taken over from another veterinary school, and these made very little progress indeed, but there has been a complete change in the type, and I must say that it is an improvement.

1245. They come straight to you from secondary schools, I suppose?—Yes, now very largely. I have here the names of the schools from which they are drawn.

1246. We need hardly go into that?—They are schools well known to you, I may say. We have a number from Manchester Grammar School, from Warrington Grammar School and Wigan Grammar School, Rossall, and so on. Speaking generally, they are rather near.

1247. The Royal College, of course, insists on certain preliminary examinations?—Yes.

1248. But, as a matter of fact, your students are a little above that minimum?—Yes, and that rather substantiates what I was saying with regard to the improvement in the type of students. At the first entry we had a large number of students, several had no preliminary certificate at all, and a large proportion of them, I should say almost 90 per cent., presented one particular type of certificate, which I need not particularise, for obvious reasons. That certificate is accepted by the Royal College of Veterinary Surgeons, and I may say also it is accepted by the General Medical Council.

1249. Still?—Still. The number of students who took it when the type was low, I think, is evidence of the class of the certificate, but although they are still enabled to present a certificate of that type, we have a large number that come to us now who are able to present us with a very much better class of certificate, such as matriculation. It is not incumbent on them to take matriculation. We have six in the school with a university matriculation certificate, three with an Oxford Senior Local, one with the Royal College of Surgeons, Ireland, Preliminary, one with the Glasgow Medical Preliminary, and so on, and one of these students is a graduate in science.

1250. Do you think it would be an advantage to the school if, in addition to those who come in in that way from secondary schools, you had a certain number of men come in who had actually graduated in science?—I certainly think it advisable that the preliminary education should be raised to as high a standard as possible, but I would scarcely say that it was necessary to go to the extent of requiring that they should be graduates.

1251. No, but supposing they had gone even to the intermediate stage of a science degree?—As far as the curriculum is concerned, there would be no advantage at all, for under the existing regulations they would not obtain any exemption.

1252. Your first year, I suppose, is taken up with chemistry, physics, and biology?—Yes, and junior anatomy.

1253. Do they attend the same lectures or have you separate staffs?—As far as it can be arranged they attend the same lectures as the medical and other university men.

1254. Supposing a man has taken his degree in science, would there be any difficulty in exempting him from one year of your four-year course?—Only in so far as anatomy is concerned.

1255. You would accept anatomy?—Yes; anatomy happens to be my personal subject, and that is a subject that could not possibly be taken in one year, and you could not cut down the number of years for it.

1256. You take osteology in the first year?—Yes, and it is very wide: it takes in so many types.

1257. Does that extend over the whole year?—Yes. It is one of the largest courses.

1258. They take osteology plus chemistry and physics and biology, I suppose?—Yes; they take organic chemistry and inorganic chemistry, botany and zoology, physics and junior anatomy.

1259. Do you think there would be any advantage in getting a certain number of graduates in biology or chemistry into the school?—Yes, so far as the type of man is concerned I should like to have as many graduates as possible, but under the existing regulations, as I have told you, it would not necessarily reduce the length of their course.

1260. Not necessarily, but would it be practicable to reduce it? Of course, you can hardly expect a graduate of three years' standing to go through another four years' course, making seven in all?—In accordance with the general principle of the acceptance of an examination up to a similar standard adopted by another examining body, what you suggest ought to be feasible. For instance, in a university where a man has passed an examination in the corresponding subjects in the faculty of science he is not required to pass those subjects again in the faculty of medicine if he cares to proceed to a degree in that faculty.

1261. Now to go to the other end of the course, how many men who have taken the complete course take a further post-graduate course?—Quite a number of them.

1262. Have you the numbers for a year or two or three years? I am speaking of those men who have already got their qualifications?—26 have taken the full D.V.H. course, and 21 obtained the diploma afterwards; 5 failed in the examination. You put a question to the chairman, and if I may answer it it will be interesting to the Committee, I think, as to the subsequent careers of the men.

1263. I should like to get the numbers first of those who read for the post-graduate course at present?—At present there are two taking the course for the diploma in veterinary hygiene, and there are four who will come in in January under the special regulation relating to the fourth-year students. We have a special regulation under which, if a fourth-year student attends special classes during his final year, he is exempt from attendance for 10 weeks for the diploma in veterinary hygiene. He need only attend for a further period of 10 weeks. Those men who take that special course under that special regulation only come in in January.

1264. That is a sort of half-course?—No, it is simply a matter of attendance. They will have done extra work during their final year. They take extra classes during the whole session of three terms. The object of the regulation is to reduce the time and expenditure to those men in coming back again.

1265. Do you think the element of expense is a serious matter in preventing men from taking a post-graduate course?—I do not think it has such a bearing upon the post-graduate course as it has upon the undergraduates. The matter of expense comes in more in regard to the undergraduate students.

1266. You do not feel that the capable men who have got their qualification are debarred from taking further post-graduate study in the school on the ground of the cost?—Some are, undoubtedly, but I think more are prevented from coming into the school at all on the matter of finance than are prevented from coming back for post-graduate study. I take it that the object of this inquiry is because it is felt that we want more men to come into the profession; and to my mind what prevents many eligible men from coming into the profession is the question of finance. For instance, this graduate in Liverpool could not possibly have come to the school but for the fact that there was a school at Liverpool and he could attend it and live at home. That is the difficulty which underlies the whole problem, to my mind. 28 out of 37 students whom I have recently interviewed and to whom I shall refer later are drawn from Liverpool and the surrounding towns. They live at home and come in daily.

1267. Are there any scholarships offered by the university at Liverpool?—No scholarships, but the university has a system by which assistance can be rendered to certain local students.

1268. Perhaps now you will kindly give us the subsequent careers of the men?—Yes. With regard to the holders of the diploma of membership of the Royal College of Veterinary Surgeons we have had 53 since the school was instituted. Seven of those are in South Africa, all Government veterinary surgeons; two in Cape Colony; three in Southern Rhodesia; one in Bechuanaland; and the other in Kroonstad. Then there are two in India: one at Lahore Veterinary College, on the veterinary teaching staff, and the other is in Burmah making investigatioas into the diseases of elephants. One is Government Veterinary Surgeon at Brisbane; one in Jamaica; one in Canada; one in the Army—there is only one in the Army—one is veterinary officer of health at Blackburn; two are assistant veterinary officers of health; one is a meat inspector at Stourbridge; one is veterinary surgeon to the Brown Institute, London University; and one is veterinary surgeon to the London and North Western Railway Company. Sixteen of them have practices of their own, or in conjunction with their fathers; and a large proportion of the remainder are in good assistantships which have been taken with a view to succession in a number of cases. We feel rather pleased when we review the positions that some of these men have taken after leaving us. Then with regard to the holders of the diplomas in Veterinary Hygiene, several are in India; three in the Civil Veterinary Department, and one is in the Central Provinces at Nagpur; one is at Rangoon engaged in educational work there, another is municipal officer at Rangoon, and one at the Muktesar Bacteriological Laboratory, which is the principal bacteriological laboratory in India. Three are in the Army; two in Africa; one the veterinary bacteriologist to the Department of Agriculture at Cape Town; he has turned out some very goed work, and his publications have been very valuable and numerous indeed since he went out there. His name is a well-known one. Another is the veterinary bacteriologist at Kabeti, in British East Africa; he also has done much valuable work on trypanosomes. One is in New Zealand in charge of the veterinary laboratory at Wallaceville, Wellington, and one is at the Board of Agriculture here as assistant veterinary inspector. He is the only holder of our post-graduate diploma at the Board. Then there is one at the Edinburgh Veterinary College; he is a lecturer there. One of these men went on an expedition to the Argentine to make investigations into the diseases of cattle on large ranches there, and another one went out also with an expedition from our Tropical School to Africa.

1269. That is out of the total number of men who have taken the diploma in veterinary hygiene?—Yes, with one exception; he was a research worker, but did not work for the diploma.

1270. You account for nearly all of them?—Yes; I think there are four or five of the holders of the diploma of veterinary hygiene who have gone into private practice.

1271. The majority of them have gone into research or into the public service?—Yes.

1272. Can you tell us what the research consists of and under whom the studies are carried on? What is the length of the post-graduate course?—20 weeks.

1273. That is practically a full winter session?—Yes. This is the post-graduate course which is in the prospectus for last year, but I may say that the course is under reconstruction now: the whole course is receiving consideration by the university owing to the fact that a new chair in bacteriology has been created which will particularly deal with public health bacteriology.

1274. That chair of bacteriology separates bacteriology from pathology, does it?—Yes, pathology and bacteriology are under two separate chairs, and this chair in bacteriology will deal with public health bacteriology, and our students will have the advantage of being taught in that department.

1275. In Edinburgh and Manchester public health bacteriology is the subject of one chair and bacteriology the subject of another chair?—I was not aware that they had actually separated them there. Professor Beattie, of the University of Sheffield, has been appointed to the chair of bacteriology associated with public health at the Liverpool University.

1276. So that your students who have taken their veterinary qualification will take part of their post-graduate course with him?—Yes, under this new arrangement.

1277. And some of them will take part of their post-graduate course in the tropical medicine department?—Yes; parasitology with Dr. Stephens, who is very well known in science; entomology with Professor Newstead; toxicology with Professor Buchanan and so on. In general the post-graduate course is largely practical laboratory work. The laboratory is open and is accessible to the students every day from 10 till 5 o'clock.

1278. Your association with the university there enables you to put the students in the post-graduate course under the university teachers?—There is no difficulty at all; they are in the same building all under the same roof, only on separate floors. The advantages are obvious, and they make themselves apparent to us every day of our lives. When we want parasites of a peculiar type, say blood parasites, we can always go to Dr. Stephens. He is one of the biggest experts in the world on them. The same applies to Professor Newstead in regard to entomological parasites. It is a question whether there is any finer collection than the collection he has, and they are all there and are entirely at our disposal.

1279. The association with the university, therefore, enables the work to be carried on thoroughly efficiently?—Yes; it would be impossible for me to enumerate the advantages which we derive through the association.

1280. Your men have no difficulty in obtaining suitable appointments?—No, not now. As I mentioned at the beginning, our type has undergone a complete change. At the beginning they came to us from another school, and they did not mix with the university students; they kept to themselves, and they expressed a strong desire to have separate common rooms, and so on, and a very significant action which they took was with regard to their own society. They had a students' society, and the guild of undergraduates at the university—with which you will be acquainted, I have no doubt—extended an invitation as soon as this school was formed to the students to affiliate their society with them in the usual way, but to our astonishment the students declined the invitation; they wished to continue as a separate institution altogether, and they declined to enter into the spirit of university life at all. As an evidence of the complete change which has come over them, the students last year on their own initiative got together and sent an application to the guild for permission to be affiliated. That came entirely from their side, and the guild granted it, of course, willingly.

1281. (*Sir Thomas Elliott.*) Do the members of the staff of the veterinary school who are also members of the university staff, men like Professor Herdman, for example, give special lectures to students in the veterinary school, or do the students in the veterinary school attend the lectures in common with the other students in the university?—In every case where it is possible our students attend lectures in common with the others.

1282. Then you yourself would not be inclined to attach importance to the view that from the very beginning there must be something like specialisation as regards such general subjects as physics and botany?—I am also a member of the council of the Royal College of Veterinary Surgeons, but certainly in my opinion it does not require any particular specialisation in regard to those subjects. I think that the same biology that the medical man or the science man would take, and precisely the same physics, and certainly the same organic and inorganic chemistry, would suffice for the veterinary surgeon just as it suffices for the other professions. I need only mention that a man who comes in for his M.B. London ——

1283. (*Chairman.*) Would you say the same as for the science and the medical student? In some places the chemistry is different?—That does not obtain among the universities generally.

1284. It obtains to some extent in London and to some extent in Manchester?—No, I think not in London. If a man takes his Bachelor of Science in London he is exempt in those preliminary sciences for his M.B.

1285. In Manchester he takes bio-chemistry in his third year?—Bio-chemistry is a special subject altogether. We have a chair in that subject which is separate from the subjects of organic and inorganic chemistry.

1286. Do your students take that?—No, it is not required; I wish it were.

1287. (*Sir Thomas Elliott.*) I gather from what you have already said that you think there is considerable value in the fact that the Liverpool School is an integral part of the university and not a self-constituted and isolated institution?—I say without the slightest hesitation, and after very close observation, that that is really the greatest benefit which the school has, the benefit of association with the university departments. I say it as a member of the staff. It has been of great benefit to me personally, and I certainly think it has had a great influence on the development and training of the students. When they leave us it is my candid opinion that they leave possessed not only of a certain amount of information, but they also leave with a much broader and real education and are better developed men.

1288. You have given us some very interesting figures as to the number of your students who have subsequently to obtaining their diploma obtained public or quasi-public appointments?—Yes.

1289. Is that number exceptionally large in your case in proportion to the total number of students?—I should say it is in proportion to the number of students we have, and I look at that list with some personal pride myself.

1290. It occurred to me that the number was exceptionally large. To what do you attribute that fact?—I attribute that to the development of the men themselves under what I may term the psychological law of association.

1291. As regards the post-graduate course, do you think that the question of the means of the students would prevent the extension of that course?—I do not attribute very much importance to the question of finance in regard to post-graduate study, but I certainly do emphasise it in regard to the undergraduate study.

1292. So far as undergraduate study is concerned, I rather gather from what you have already said, that you would welcome any arrangement which would enable a certain number of young men to come to your school who would be otherwise deterred by financial considerations?—I have been asked as a last question to make a suggestion as to increasing the number. I certainly would not suggest that an arrangement should be made which would compel—notwithstanding the fact that it would be a good thing for the school which I represent—men to come to our school when there are university colleges near home. The big financial item to the student is the question of residence, and it scarcely would be logical to ask a boy to come from, say, within 10 miles of Cardiff or Bristol to Liverpool.

1293. Do you think that this Committee could make any recommendation which would attract to the schools, and thence to the profession, a larger number of better-equipped men?—Certainly I do. I think that the whole keynote of the situation lies in the geographical distribution of your centres, as I suggest in the last item of my précis.

1294. Do you think that difficulty would be got over if a number of scholarships were provided to be held in one or other of the schools, which would have the effect of neutralising, as it were, the present bias in favour of particular localities?—I have been giving some thought to that myself, and admit that the institution of a number of scholarships to be held in such schools might be of considerable assistance. I certainly think, however, that the cheaper method for the Government, and the better method so far as the men are concerned, is to institute centres elsewhere on the principle under which all the great northern universities have been established, that is, of carrying the education to the populous centres.

1295. Does not the application of that principle rather depend upon the extent to which the education is of a general character and to the extent to which it is of a particular and specialised character?—I fail to see myself on examining the problem that the veterinary profession demands any particular and special treatment which would be different from that meted out to any of the other professions.

1296. If you take some of the other professions, facilities for obtainlng knowledge, at any rate, are confined to a comparatively small number of places?—I do not think that is so to-day. Since the growth of our universities there are very few other professions if any into which you could put a boy for which he would not be able to receive his education at the university and reside at home.

1297. I gather you would be in favour of a substantial increase in the number of veterinary schools?—Not a substantial increase, but I certainly think there is room for one or two more established in existing universities.

1298. Would you have a school in connection with every university?—No, not necessarily. Of course, it would not be necessary to have a school in connection with every university, but I certainly think, as I say, that there is room for one or two more schools. Take, for instance, the large area down in the south-west of England. Is it reasonable to expect a boy who is endeavouring to make up his mind as to what profession he will go into, to decide in favour of the veterinary profession and exclude the medical profession, when he can go to Bristol or to Cardiff, which is next door to his own home, comparatively, and thereby enter one of the other professions? I can give you my own case, if I may do so with propriety.

1299. Please do?—I think it is a type of quite a large number of cases. I am the son of a farmer who lived in North Wales. In my time the only choice lay between London, Glasgow and Edinburgh. There were then three schools in Scotland and one in England. There was no school in Liverpool and there was no school in Ireland or Wales, and although my father's natural inclination was to the veterinary profession, and mine decidedly to the veterinary profession, the very day before I left home he tried to persuade me to go to Liverpool or Manchester. I could go in by train daily to Liverpool, and I had relatives living in Manchester, and he tried, the very day before I left home, to persuade me to go to Liverpool or Manchester and enter the medical profession. He had a large family, and his estimate was that it would cost him 200*l.* more to put me in the veterinary profession than it would cost, owing to the facilities near home, to put me into the medical profession. I think there must be quite a number of boys who are in the same position.

1300. I quite agree, but it seems to me rather a large and difficult and expensive way of remedying that defect to establish new schools in new centres. Would not a simpler plan be to enable the class of boys of whom you speak, and of whose existence I think I also am aware, to go to one of the existing schools by means of a scholarship? Supposing, for instance, instead of your father being called upon to meet that substantial expenditure, a scholarship of a substantial amount had been available which would have taken you, say, to Liverpool, if that school had been in existence then, would not that have been an easier way of meeting the case?—No, I think it would be very much more expensive, because the scholarship would have to be so substantial to permit a boy to live away from home for such a prolonged period. I certainly think, when you have departments, which are now required by the curriculum already founded in your universities, and which are not debited against the veterinary school, they ought to be taken full advantage of. In Liverpool we have chairs which are endowed to the extent of 70,000*l.* which we are permitted to use, and they do not cost us a single penny. We have laboratories, museums, and other buildings, the privilege of which we have to the full. They cost the sum of 150,000*l.*, and probably a great deal more—that is the minimum—and we have the free use of those existing endowments.

1301. How many professional teachers have you on your staff?—We have 10 university professors with endowed and other chairs; we have eight lecturers, five of whom are veterinary surgeons, and of assistant lecturers and demonstrators we have eight, three of whom are veterinary.

1302. What would the aggregate salaries of the veterinary staff of the school be?—I have not the figures with me.

1303. 3,000*l.*?—Oh, dear no!

1304. 2,000*l.*?—No, we run the school on lines very similar to those on which medical schools are run. We obtain the services of big practitioners in the city for a very small amount, as the medical schools do.

1305. (*Chairman.*) Their stipends are on the same scale as those of the medical clinical?—Yes.

1306. And the men are also engaged in private practice?—Yes.

1307. They take on the veterinary appointments in the same way as doctors engaged in hospitals?—Yes, precisely the same as such men as Sir Frederick Treves did.

1308. That would not apply to such subjects as chemistry?—No, but those subjects are endowed, and do not cost us a penny.

1309. You also have the advantage of association with the university in the earlier stages, and the instruction is provided more efficiently and at far less cost by the fact that you have the services of university professors and all the material at your disposal?—Yes, and that applies to most of the subjects in the first year, and to physiology and histology in the second year.

1310. You have university professors for those?—Yes, and also for pathology and bacteriology in the third year, representing an aggregate endowment of 70,000*l.*, and it is not charged against us.

1311. Really, all that falls upon you is just the cost of these few appointments?—Yes.

1312. The pecuniary remuneration is very small?—Yes.

1313. It is really for the position?—Yes.

1314. Do the same advantages apply with regard to the advanced and research work?—Yes, precisely.

1315. You get the thing done very much cheaper and much more efficiently?—Yes.

1316. At practically very little cost to the veterinary department and very much more efficiently?—Yes; you can run a school at a third of the cost.

1317. Not only cheaper, but more efficiently, both at the earlier stage and at the later stage, including in the later stage advanced research work?—That is so.

1318. (*Sir Thomas Elliott.*) I quite agree with your view as to the advantages and the efficiency that follow from the association of a veterinary school with a university, but I rather want to follow a little further your suggestion that instead of making it easy for students all over the country to get to the existing schools you ought to take new schools to the potential students. Apart from the general university staff, the services of which are available for the veterinary students as well as for the other students, you employ a certain number of veterinary surgeons to teach the veterinary subjects, which could not be taught except by veterinary surgeons?—Yes, I myself am a veterinary surgeon, but am not engaged outside the university at all.

1319. They must be specialists?—Yes. If you would like to know my stipend I am willing to state what it is.

1320. No, the amount of your stipend would not tell me at all what I want. What I wanted to know was, what are the inevitable expenses of the veterinary teaching staff? The suggestion is that more veterinary schools should be established in connection with universities like Bristol or other modern universities, and I wanted to get from you, based upon your experience at Liverpool, what the cost of the teaching staff would be?—The cost of a school associated with a university where endowments exist?

1321. Yes?—I should say that 1,500*l.* to the staff would be exceptionally good payment, as veterinary teachers are now paid.

1322. I understand that your deliberate opinion is that this Committee should recommend the creation of new schools on lines such as you adopted in Liverpool, rather than that we should facilitate the entry of potential veterinary surgeons into the existing colleges by means of scholarships?—Yes, two or three new schools—say two new schools.

1323. Whatever may be the remedy, I gather from you that in your opinion there are a number of men up and down the country who might make excellent members of the veterinary profession who are handicapped by their inability to get to a school?—Undoubtedly so. I have dealt with this matter in detail in my précis, and I hoped to give it in my evidence. There are other advantages, apart from the financial side, of having a school planted in an area. The astounding fact to me is that the public know so little about the profession. Even public bodies know little or nothing about the profession, and nothing about the real work which the profession is called upon to perform, and the planting of a school in an area would popularise the work of the profession and would educate the public to make that real use of the profession which the public makes elsewhere. At present the profession is practically stagnant. Our annual output into the profession in proportion to the population, as I have figures here to show, is not to be compared to the output into the profession in countries abroad.

1324. I must not take you too far away from the subject of our reference, which, as you know, is the recruitment in the best possible way for the public veterinary services. With regard to that, I should like to ask you, and you probably through your old students have by this time a very accurate knowledge of what is required by the public services, whether you think that the existing post-graduate arrangements are sufficiently extended to give us the best possible result?—I do not think you will get the result which you desire until you can increase the number of undergraduates. The post-graduates in the end will have to be fed from the undergraduates, and until you can increase the number of undergraduates you will not get the men you require for the public services.

1325. When you say "increase," you mean increase in number?—Yes.

1326. And quality?—And quality, if you take in the universities.

1327. Having increased the number and quality of our undergraduates, what do you say as to their instruction subsequent to their having obtained their professional diploma?—I hold rather a strong view on that. I think that the instruction up to the time when they receive their diploma should meet the ordinary requirements of the services. If it does not, then the time has arrived when we should improve it. For the specialised work that some of these men have been going out to do afterwards, I think that the post-graduate course of study is alright and is necessary.

1328. Your view would be that there should be some modification of the curriculum within the four years which would satisfy in a measure the requirements of the public service?—I do not think that it really refers to any particular modification. It refers to the type and the tone of the man whom you get in, and the development of that man during that protracted course of study. During the four years a man ought to develop considerably if the ordinary influences are brought to bear upon him.

1329. You think that new means are necessary in order to produce that man?—The university provides the means.

1330. That is, provided that the right type of man gets to the university?—Exactly—provided the facilities are given in the area in which the man lives, I will just refer to Wales, if I may.

1331. Please, yes?—In Wales we have a very excellent system of intermediate education—intermediate schools—which form a natural stepping-stone from the elementary schools to the universities, a natural stepping-stone for the poorest of boys if they have the ability. What is the result? There is a natural tendency on the part of the boys to read, and in large numbers they go into the university in Wales, and they are almost all going in for arts and science and taking degrees in arts and degrees in science, which shows that they must stay there at least three years. What is the result? It is not uncommon at all for the county councils to receive 50 or 60 applicants, a large number of whom are degree men, for a post worth 100*l.* or 120*l.* a year. Now my point is this, that if a university within reach of those men took up veterinary education—taking South Wales as my example, where there is a seething mass of population, particularly just around Cardiff—it would popularise the work there and be the means of diverting a large number of those men of ability from that channel, where there is no outlet, to a channel where the very fact that this Committee exists is an acknowledgment that there is an outlet.

1332. Do you not think that by means of a system of scholarships we could attract, at any rate a certain number of men of the type you have mentioned?—If I were speaking selfishly in the interests of the school that I represent and of the existing schools, I would agree with you, but, if I may give you my candid opinion, I certainly think that the way to get the men is not to concentrate your education in one or two centres, as is being done now, but to take the education to the populous districts and popularise the work within those areas.

1333. Having got those men ——?—But we have not got them; that is the trouble.

1334. No, but let us assume that by the adoption of an arrangement such as you have suggested we have got the men?—Yes.

1335. Having got them, I want to take you to the training of those men for the work they will have to do in the public services. Take research work, for example: Would you suggest that the four years' course to be got, say, at your own school, would be a sufficient training for the research work?—Yes, under this arrangement which we are having now—if they get sufficient practical laboratory work and all the facilities which are in the university at no cost to ourselves, facilities which cannot be provided under the arrangement you suggest, because the cost would be fabulous, but with the facilities provided at the universities I think the type of man could be so developed during his four years' undergraduate course that he would be able to undertake any ordinary public work.

1336. With or without post-graduate training?—He should be.

1337. You do not think that the post-graduate course is essential in the case of a man of that kind?—Not if he has had a proper undergraduate training.

1338. (*Chairman.*) Would that apply to all the higher posts—the higher teaching posts and the higher research posts?—I think a man should develop during his undergraduate career a taste for research, and should develop methods of research which, if he has got it in him at all, he can apply after his four years' course of training. I do not wish you to think that I am saying it is not advisable for a man to have post-graduate training, because I would not say that it was not advisable for a man to have 10 years' training if he could possibly get it.

1339. (*Sir Thomas Elliott.*) It might be very inadvisable for a man to train for 10 years, might it not; a man can train too long, cannot he?—Yes, that is so.

1340. (*Chairman.*) For the higher posts abroad do you attach any importance to those men who have taken their veterinary diploma taking the post-graduate year of training?—I think the majority of those men would have a good groundwork and would be well qualified.

1341. I mean for the higher posts. Do you attach any importance to the post-graduate work?—Yes, I certainly do attach importance to it for particular posts.

1342. I mean for the most advanced posts?—Oh, yes; for these posts, certainly. They are different. But for the ordinary army and Government posts the necessity is not so marked and for these an undergraduate course extending over four years should be sufficient.

1343. (*Sir Thomas Elliott.*) I rather gathered that you attached so much importance to it as to lead you to suggest to the Committee that some special financial assistance should be given to men to enable them to take the post-graduate year?—No, I do not attach anything like so much importance to that part of the training as I do to the undergraduate part, in so far as the objects of this Committee are concerned.

1344. Have you any suggestion of an affirmative character to put to us as regards the means by which we could secure even a better type of man for the public services than we get now?—Yes, I make it as a definite suggestion that you should increase the number of educational centres, and that those centres should be in university cities where there is a medical school or an agricultural school, or preferably both, existing, because the facilities provided by those schools would not be debited against the veterinary school, and it would be a very economical method, and much better for the State, and I further suggest that they should be State-aided; all veterinary schools should be State-aided, existing and new ones.

1345. You think that additional State aid should be given to them?—They are not State-aided at present.

1346. Surely you do benefit from State aid indirectly at the University of Liverpool?—Indirectly, but I am referring to direct State aid.

1347. I understand. I take it your main idea is that owing to the question of locality we do not get the number of students that we otherwise would get, and that we do not, secure a free choice?—That is the point.

1348. And that we are limited in our choice of what we sometimes call the best brains of the country?—That is precisely the point I would like to emphasise here. I do not think that social position has much to do with it. I think that if a boy has brains, even amongst the lowest class, an opportunity should be given to him to develop them.

1349. Under the existing system you think that we get a limited, and perhaps not the best, choice?—Precisely. There is another point with regard to raising the stipend for the posts in the services, but I do not attach anything like the importance to that point, important though it is, that I do to the other suggestion.

1350. You do not see any inconsistency between that suggestion and the suggestion you make earlier in the same part of your memorandum, that few veterinary surgeons in this country are out of employment?—In what way?

1351. You do not think that we get a fair pick of the men available?—Taking some of the branches of the public service, I do not think the remuneration is at all bad. It is largely a matter of the natural inclination of the student. I have taken the trouble to interview 37 of the students in our school within the last week to ascertain what their natural inclination is, and the result is peculiarly pleasing so far as the object of this Committee is concerned. I have already dealt with the type of man. The type we had originally was very different. As I say, I have interviewed 37 of our students in order to find out whether they had come to any definite conclusion in their own minds as to the particular branch of work which they intend to follow in the future, and, of those 37 men, men of the type who are coming to us from these schools, and who are possessed of a good preliminary education, 22 express a desire now for a public appointment, 5 express a desire to go into the army, 8 wish to go into practice—3 of those have practices already waiting them with their fathers, and one with his uncle—1 intends to go stock-rearing in South America, and the other is undecided. There is a distinct change in the ultimate objective of these men as compared to what would have been their objective eight years ago, and that I attribute to the university association

1352. That is rather the point to which I was referring just now; when I suggested that there was some inconsistency in that respect and your remark about the salaries, because, notwithstanding the small salary that you speak of, there is apparently a desire to enter the public service?—There is only one salary that I consider much too low; that is the Board of Agriculture. You will notice that we have only sent one man to the Board of Agriculture.

1353. (*Mr. Read.*) Could you differentiate at all with regard to those 22 appointments? Could you say how many wished to go to the colonies and how many to India?—Two only expressed a desire to go to the colonies. What I think they desire to obtain are public health appointments, which I agree with them are likely to agree in number and importance.

Professor JAMES MCCALL, F.R.C.V.S., called and examined.

1354. (*Chairman.*) You are the principal of the Glasgow Veterinary College?—I am.

1355. How long is it since that college was founded?—It was founded in 1862.

1356. You have been President of the Royal College of Veterinary Surgeons?—I have.

1357. You have kindly furnished us with a précis and in that you have given us a table of the number of students attending the college in each year which we can put on our notes*?—Yes.

1358. To what do you attribute the falling-off in the number of students?—With us there is a very large falling-off.

1359. To what do you attribute that? Do you think that is permanent or merely temporary?—I think ultimately it will be only temporary.

1360. To what do you attribute that mainly?—I think, in the first place, the parents from whom we draw our students are not too well off. Our students are mostly drawn from veterinary surgeons and farmers.

1361. We can understand that that may debar some, but would not that cause have operated in past years just as much as at present?—Not quite so much, because our period of study had been extended to four years, and a great many of our students do not pass in the four years, and a considerable number in five years.

1362. The four years' course being the minimum?—Yes, that is the minimum.

1363. The extension of the course has had a deterrent effect?—Undoubtedly, but I think that so far as Glasgow is concerned the falling-off in numbers has been greatly due to their establishing a veterinary college in Dublin. Prior to the Dublin Veterinary College being established, the bulk of the Irish students were in attendance at the Glasgow Veterinary College.

1364. That would affect Glasgow more than any other college?—Considerably more. Then again, within the last few years the motor undoubtedly has had a good deal to do with so few students coming in.

1365. Is there any relationship between the University of Glasgow and your college?—No direct relationship further than that the students are taught bacteriology, a practical three months' course in the university, for which we pay so much per head for each student.

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* *See* Appendix I. 6.

1366. Is that course before they take their qualification, or is it a post-graduate course ?—It is before they take their qualification. We have no post-graduate course.

1367. Are your chemistry and physics done by your own teacher and not by the university professor ?—Yes; we had a temporary engagement. At the West of Scotland Agricultural College they had not sufficient accommodation for their students, and they arranged that their students should go to the Veterinary College to be taught chemistry and physics, and I arranged that my students should also be taught by the same teachers, but now they have accommodation for their own students, and we have our own teachers for our students, as formerly. My experience was that it was not so satisfactory, students going for chemistry and botany with the Agricultural College students, as when they were taught in the institution by themselves.

1368. You do not agree with the view that it would be well to use the university teachers for the purpose ?—It was simply this, that the students themselves stated that they were getting a great deal of agricultural chemistry which was of little use to them so far as passing their examination was concerned. No doubt it was of benefit to them, but not so far as passing the examination was concerned.

1369. What is the amount of the fees charged by your school ?—They are identically the same as those at the Edinburgh Veterinary College.

1370. What does it cost a man to take his four-year course ordinarily, apart from residence ?—The first year's fees amount to 21 guineas, the second period of study to 18 guineas, the third period to 16 guineas, and the fourth period to 15 guineas, and for each subsequent period of 10 weeks, 5 guineas.

1371. Do you think that the amount of those fees acts as a deterrent to suitable boys ?—Undoubtedly some of the parents have a difficulty in finding the fees. It takes about 500*l.* to put a young man into the profession now.

1372. Do you know what the subsequent careers of your students are ? Do they take employment under the State or do they go into general practice mainly ?—I think that the bulk of them go into general practice, but we have a list here of students who now hold public appointments.

1373. That goes back to the early years of the college as well, does it ?—It goes back for 40 years. This list is at pages 54 and 55 of the prospectus—a " List of veterinary appointments at home and abroad " held by former students of the College."

1374. Do you have a post-graduate course ?—No, we have never had a post-graduate course, but we are making arrangements for it. Alterations are being made in the college at the present moment that will cost us upwards of 2,000*l.*, and when those alterations are completed we intend to have a post-graduate course for the future.

1375. You have not dealt with the question of using the teaching staff and the laboratories of the University at Glasgow for assistance in such a course ?—No.

1376. You are really working quite independently ?—Quite independently, and my experience is that if we had everything we required we would rather act independently.

1377. (*Sir Thomas Elliott.*) You heard some of the evidence given by Professor Share-Jones ?—I did.

1378. Do you agree that further veterinary colleges are needed ?—I do not.

1379. What sort of support do you get from the Government ?—We have only received support within the last three years, and that comes to us now from the Board of Agriculture for Scotland.

1380. How much do you get ?—There is no fixed sum given.

1381. What was it last year ?—I really could not tell you that. I merely gave you question and answer to what you put before me; otherwise I would have come prepared for that.

1382. This money that you have received is going to be spent in building alterations ?—Yes. We have raised of that money 1,000*l.* in Glasgow, and the Board of Agriculture duplicate that; they have always done that. We raised some 5,000*l.* three years ago, and they duplicated it, and now we have raised again 1,000*l.*, and they are duplicating that, but we have some difficulty in getting as much as we require.

Winchester House, 21, St. James's Square, S.W.

FIFTH DAY.

Saturday, 16th November 1912.

PRESENT:

SIR ALFRED HOPKINSON, K.C. (*Chairman*).

Sir THOMAS H. ELLIOTT, K.C.B.
Mr. H. J. READ, C.M.G.
Major G. F. MACMUNN, D.S.O.
Mr. FRANCIS C. DRAKE.

Mr. H. L. FRENCH (*Secretary*).

Mr. FREDERICK HOBDAY, F.R.C.V.S., F.R.S.E., called and examined.

1383. (*Chairman.*) I think, Mr. Hobday, you were formerly Professor in the Royal Veterinary College ?—Yes.

1384. And Examiner to the Royal College of Veterinary Surgeons ?—I was.

1385. You are now Honorary Veterinary Surgeon to His Majesty ?—I am.

1386. Do you think, from what you have seen, that there is any need for an increase in the number of highly qualified men for the veterinary services in the United Kingdom ?—I do.

1387. Would you mind amplifying that a little bit, and pointing out in what direction you think that a further supply is desirable ?—I think, in particular, for the public health service we need in England more qualified veterinary surgeons than we have, as compared with other countries. I have visited America, Germany, France, Belgium, Hungary, Austria, and, compared with those countries, we are far behind. We have no such thing as a public veterinary service, from many points of view, as compared with them—for example, the question of meat inspection, which is carried out in those countries, I might mention entirely by members of our profession, and for which our men in England are especially trained. In this respect we are ever so far behind them, in fact, we have nothing of the kind in England as compared with them.

1388. Is such meat inspection as is done in England done by qualified veterinary surgeons?—Only in a very few advanced cities, more particularly in towns in Scotland than in England.

1389. Would it be better done by men who had veterinary training?—Absolutely, I am quite sure about that.

1390. Beyond the particular purpose of meat inspection, are more appointments required to be opened for veterinary men, in your opinion?—Yes, there are more required, there are not so many appointments open for them at the present time as there ought to be.

1391. Would it be possible for men who have not had veterinary training, but for, say, men who have had medical training, to take up these appointments?—No.

1392. You want veterinary training?—Absolutely.

1393. The particular work of meat inspection is a matter affecting public health?—Yes.

1394. What training would such men want beyond the ordinary veterinary training?—They would want practical training; they would require to go as assistant inspectors first in large abbatoirs, and places like that, where we have such places in England.

1395. Would there be anything they ought to do within the veterinary colleges, or within some institution of a similar kind by way of special preparation for that work?—I think they are sufficiently trained now; they have a sufficient foundation given to them for meat inspection. They would go at first as junior inspectors.

1396. They would be working in practical work under some senior at first?—Yes, certainly, for a time.

1397. They would not want any more training in the nature of collegiate training?—No, as far as the London College is concerned, under Sir John McFadyean, I know it is quite sufficient.

1398. Apart from meat inspection, do you think there are any other departments in which it is necessary to increase the number of inspectors?—Yes, the Board of Agriculture. I think it is necessary to increase the number of inspectors that they have.

1399. For what class of work?—Work like the suppression of contagious diseases in animals, and the suppression of outbreaks like the recent outbreak we have had, which has been successfully dealt with, but which might have required a sudden call upon more veterinary inspectors than are at present available.

1400. (*Mr. Read.*) Do you include the inspection of dairies as well?—Yes, that is very improperly done in England at present.

1401. (*Chairman.*) Does this include diseases not merely affecting animals alone, but diseases communicated by animals to human beings?—Both.

1402. Including tuberculosis?—Yes, if it was not such a very big question, that is one of the things the country cries out to have suppressed.

1403. In the kind of work you are contemplating, are you including both administrative and investigatory work and research work?—Yes.

1404. All three?—Yes.

1405. Investigatory work and research work are different from administrative work?—Yes, those two belong particularly to the veterinary profession. For administrative work I admit a man need not be so highly scientific. That is organised work and different work, but at the same time it requires a man who has veterinary knowledge to organise a veterinary department.

1406. Then we may take it from you first that the number of appointments is deficient in quantity, and that the number of men trained for those appointments is also insufficient?—Yes. I believe at present that the number of men available, if they were solely relied upon—if practitioners were not able to be called in to assist—is insufficient. I do not think we are turning out any too many men from the colleges for these particular billets, but I think it is only of late that the student has looked to these billets for his living afterwards.

1407. Going from the quantity of appointments to the qualifications of the men, you have told us with regard to meat inspection, and I think we are pretty clear as to your opinion on that point?—Yes.

1408. Is there any further training beyond what the men now have that would better fit them for research and investigatory and administrative work?—Yes, it is utterly impossible in four years for a man to do more than get the ground work of what his future profession is going to be. After he has qualified it is time for him to specialise. If he is going in for public health work, then it is necessary for him to take a further course of study somewhere or other. At the present time we try to get it by a post-graduate course, but that is quite voluntary; a man is not bound to take a post-graduate course, and I would have it compulsory.

1409. Putting meat inspection on one side, for these appointments which you have alluded to in the Board of Agriculture, and others, what kind of training after qualification do you think is desirable?—I think it necessary that a man should have some practical experience of it. At the present moment if he enters, for example, to be employed by the Government in these contagious diseases alone, he gets an appointment under the Board of Agriculture, and then for a number of months he is occupied in getting to know what he has to do; to a certain extent he is on probation.

1410. Would you think it important for that class of work that they should have some training, either in the colleges or in some academic institution where research work is going on?—Yes, I would give them more training than they have at present.

1411. For how long a period would you consider desirable?—I should like 12 months, but if we could get six we should be content.

1412. Six months would be good, but 12 months would be better?—Yes, I think a man in 12 months should have a sufficient grip of the thing to go out in the world and deal with the diseases in a practical manner.

1413. What you have said with regard to such appointments as you have alluded to in the Board of Agriculture would apply to appointments abroad?—Yes.

1414. What should the scope of the training be—that is, the post-graduate training given for the year or six months?—If I could have my way, and I speak very feelingly about it, because as a student I did this as far as my means allowed me—I had to do it out of my own pocket, which was very limited in those days——

1415. Assume for the moment that financial considerations do not apply?—I would put him for six months in some recognised laboratory, and for the remainder of the time I would have him travelling abroad in countries where the particular thing which he was working for had been made a special study of. I mean, for example, if I could have had my way I would have had six months in a laboratory with somebody, and then if I had felt that I had got a fair grip of the thing, I would have gone abroad to Germany or France, and gone into a laboratory there for as long a time as I could have spared—three months if I could, or even two months, or one month in France at the Pasteur Institute.

1416. Facilities are given for men to go and work in these continental laboratories, are they not?—Yes, indeed, they are; you have only to ask for them, and the cost is practically nothing.

1417. You would suggest six months in some research laboratory where advanced research work and instruction were going on together?—Yes, immediately after obtaining the diploma.

1418. Which would be in any selected place that was suitable?—Yes.

1419. Supposing a man was going abroad, possibly such a place as the Liverpool School of Tropical Medicine would be a suitable place for him?—If he was going in for tropical work, certainly.

1420. After that you would let him spend, if possible, four months, but at least one or two or three abroad?—Yes, I would.

1421. From your experience of the men going in for the profession, and whom you would like to have for that work, they would be selected men, of course?—Yes.

1422. Having selected the men, do you think, from your experience, that financial considerations would operate at that stage?—Yes, we are crippled at that stage in our profession. Some of the men are rich, but they generally go for the services. As a rule, they are men of small means when they come, and they have to begin earning their living as soon as they get their qualification, and as a rule they go to something which gives them a return at once.

1423. Assuming a man wanted to become thoroughly qualified for the highest veterinary posts, at what period in his career do you think the shoe would pinch most—I do not know whether I make myself clear?—Yes, you do. I think the shoe pinches most within a few months of a man getting his diploma. The father as a rule sees his son through the college, but after that he begins to hope that the boy will earn his own living. Another reason why it is of the most use to him then to make his decision is that as soon as he is finished his college course his brain is at the most active period; it has been brushed up and brushed up so much. Of course he needs a little rest, perhaps a month or so, before commencing his post-graduate course.

1424. At that period his brain more readily assimilates the advanced knowledge?—Yes, whereas if he has been out for two or three years in practice it is difficult for him to come back to absolute brain-work again, because a man in actual practice has to do lots of things with his hands that a man in a billet has not to do. I do not mean that a man in a billet has not to soil his hands, but at the same time he has much more of a comfortable armchair time than the man in actual practice, and he can get more assistance.

1425. Do you think that the institution of some special scholarships for picked men to enable them to go through their post-graduate course would be of use in attracting men?—It would be a perfect godsend.

1426. Assuming they are reasonably economical, about what is the minimum sum which would put them through such a year's course of training as you suggest?—I think the minimum would be 3*l*. a week—150*l*. That is the minimum, but if he can have 200*l*. he would do it very very well.

1427. In some cases I suppose they would only require some little assistance?—Yes; if I had had 100*l*. given to me I could have done it well.

1428. But in the general cases you think 150*l*.?—150*l*. would get you the men who have to look at it from the point of view of their living, and are still keen. If a man has no reserve to draw upon, he has to consider 100*l*. a year, because he can go into practice and get more than that.

1429. Would that include going abroad?—Yes.

1430. May we take it that that is the most important thing as far as financial aid goes?—Yes, I think so, but we none of us think that our men are overpaid in some of these billets. Take the Board, for instance: I believe the salary is 250*l*., I am not sure. We do not consider, after a man has spent five years on his education and spent the money he has, that to get 250*l*. a year for two or three years is a princely salary. A man in practice earns more—he earns that his first year, and you will not get the first-class men if they look at the monetary side, but of course if they have means of their own they might go for it.

1431. Taking it broadly, in your opinion you think that the stipends should be higher?—Yes, they start underpaid.

1432. Which appointments are you now referring to—are you referring to the War Office, for example?—No, not the War Office. The War Office and the Indian Civil are satisfactory so far as pay and pension are concerned. In the Board of Agriculture—I am not speaking for any men who are appointed, but I know it is always talked about—the pay is none too much because of the prospects afterwards. If a man is lucky enough to get on the pension staff, then he does not think so much about it, but unless he is lucky enough, he spends a certain number of years and gets absolutely unfitted for daily practice, and he is then thrown upon the world and unfitted for any other branch of work.

1433. (*Sir Thomas Elliott.*) Is he in fact thrown upon the world?—If he does not stop.

1434. Can you mention anyone who has been thrown upon the world?—No, I cannot mention anyone who has been thrown upon the world except through his own fault—I absolutely cannot.

1435. I wanted to bring that out?—Quite. I know one or two men, I will not mention names, but it has been their own fault, and the stupid fellows have stopped there long enough to be unfitted for daily work, and when they have got out of it they have had a hard struggle. But I understand that at the present time the men stop at 250*l*. for some considerable time.

1436. No, that is not so. I think it is 200*l*. to 300*l*.?—They get up to 300*l*., but a man may be 34 or 35 before he gets any more.

1437. The only point I wanted to bring out clearly was that no man doing his work reasonably well is ever thrown out upon the world?—Oh, no; but if he gets to a certain age and gets a family round him, and so on, 250*l*. a year after a certain number of years is not as much as he would be earning if he had gone into general practice.

1438. Of course I am not in the witness box, but I do suggest that you should look a little more closely into the actual facts?—Yes.

1439. Arising out of an answer which you gave to the Chairman, I gather that in your opinion the probabilities point to a substantial increase being required in the number of public appointments of various kinds for which veterinary surgeons would be useful?—I believe so.

1440. And you would suggest that in any recommendations we may make on the subject, we should keep that potential increase in view?—I do.

1441. That we must not simply confine ourselves to a review of the positions that are at present available?—Yes, I do say that emphatically.

1442. You think that there are several important diseases which press to be dealt with by the public authorities?—I do.

1443. And that if the public authorities were to deal with those diseases, further appointments would be required to the veterinary staff?—Yes, and they would be whole-time appointments.

1444. Then with regard to the recruiting of the veterinary profession: what has been the previous education of the majority of the students who enter the veterinary colleges?—They have to pass the same matriculation standard as the medical profession.

1445. In what way do they acquire that qualification?—At school, or at secondary schools, before they enter the college—that is essential.

1446. Do you think it desirable that we should endeavour to attract to the veterinary colleges a larger number of men from the universities, for instance?—I do, absolutely. I do not say especially from universities, but highly educated men.

1447. Do you think it would be worth while, by means of the provision of scholarships to be held at the colleges, to attract men whose general scientific education has progressed further than that of the medical student at present?—Yes, if other bunches of carrots are held out to them after they are qualified, but I do not think that giving them a free education at the college, or scholarships to get through the college, would attract the number of men or the class of men that we want, because, for instance, now if a man can only afford that extra year, he has to pass the same matriculation as his brother who is going for medicine, and if he can only afford that extra year, and he is a brilliant fellow, I should certainly say to him, "Go for medicine."

1448. Do you not think that brilliant fellows often construct their own bunches of carrots?—Yes, but it is only very few that get through.

1449. You remember some of the pioneers of the profession?—Yes. In my time it was a three years' course.

1450. The very fact that a man can render valuable public service very often leads to his employment, and the creation of new posts, simply because the men are there to do the work?—Yes, that has been proved over and over again lately.

1451. It was suggested to us yesterday by a witness, again bearing on the provision of scholarships at the veterinary colleges, that many desirable men are unable to enter the veterinary profession because of the locality in which they reside—that they are far away from the colleges, and that therefore not only the college fees have to be provided but they have to maintain themselves because they are compelled to live away from home?—That is the case in practically nine-tenths of them.

1452. Do you think that the necessity of expenditure on the maintenance of students away from home does in point of fact stand in the way of the sons of the poorer men at any rate coming into the profession?—It does; the college fees are nothing.

1453. The cost of maintenance is the drawback?—That is the drawback; I know it for a fact.

1454. Do you think it would be desirable to establish a certain number of scholarships at the colleges in order to rectify these inequalities of fortune?—I do. I think it would help matters very much all round. The college fees I know are always looked upon as nothing—100*l.* covers the whole four years, and the parent does not think anything of that. What he says is: "My son has to be clothed and fed and kept for these years"—and perhaps he has another year to think of—"before he really earns his own living at all." That is the drawback to a man of small means.

1455. You would favour any proposal that could be made in order to remedy that?—I should, and I know it from being intimate with the students for many years and from my experience as a teacher amongst them.

1456. (*Mr. Read.*) What sort of sum do you think would be adequate for these scholarships?—I think a minimum of 30*s.* a week for living expenses and his college fees as well—practically, 100*l.* a year.

1457. Or even 80*l.*?—Yes, plenty would come for 80*l.* a year. That would be a godsend; that would attract lots of men.

Professor J. R. AINSWORTH-DAVIS, M.A., called and examined.

1458. (*Chairman.*) You are Principal of the Royal Agricultural College, Cirencester?—Yes.

1459. Of what university is your degree?—We are associated with the University of Bristol for the purpose of all the higher instruction in agriculture and forestry, for degrees and diplomas in those subjects, and we have already begun to prepare the first degree student from Bristol.

1460. You have considered the question of the shortage of officers possessing veterinary qualifications. From what you have been able to see, do you think there is any deficiency in well-qualified veterinary officers in the State services?—I am not qualified to answer that. In drawing up my evidence I assumed that there was a shortage. I can only say that really well-qualified men, so far as I can observe, seem to be not too common.

1461. As regards the shortage of highly-qualified men, assuming it to exist, what in your opinion are amongst the main causes of that?—I think what lies at the root of the whole question is the status of the veterinary profession as compared with the medical. The veterinary profession does not attract the best material—although, of course, you get a proportion of good men—but supposing that a boy shows medical tendencies, then if possible his parents will nearly always make him an ordinary doctor.

1462. Is it your view that the status of the veterinary profession is relatively low compared with the medical profession?—Certainly, and I call attention to the Public Schools Year Book, which is the official book of reference of the Headmasters' Conference. A number of articles are appended to that book upon various careers in the learned professions, engineering, medical, agriculture—in fact, I helped to draw that up myself—but veterinary science is not mentioned, and appears not to be considered a career for a public school boy. I fancy if you were to ask a father who sent his son to one of the ordinary public schools, if he would think of making his son a veterinary surgeon, he would be rather puzzled to know what reply to make—or perhaps he would not be puzzled.

1463. Perhaps in most cases the veterinary training is entirely dissociated in the case of those following that profession from that of those following other professions?—You mean to say that the veterinary students are isolated in their training?

1464. Yes?—Not altogether. In the University of Liverpool ——

1465. With the exception of Liverpool?—No, not altogether. The Dick College is now, I believe, part of the University of Edinburgh. It applies to London, of course, and it applies to Dublin. I do not know about Glasgow.

1466. (*Sir Thomas Elliott.*) Are you sure that it applies to Edinburgh?—No. I say that the Dick College is now part of the university, so I take it the veterinary students will associate with the university students. It either has taken place or will, I believe, because some years ago I took part quite informally in some of the preliminary discussions on the subject.

1467. (*Chairman.*) Do you think there would be any advantage from the point of view of the status of the veterinary profession if the profession was recruited in part from men who have already taken their science degree, or some science course in a university—men who have taken a science degree and then gone in for a veterinary course?—Do you mean a man would go through the whole veterinary course, and become a skilled veterinary surgeon?

1468. Do you think it would help at all to raise the status of the profession if it could be recruited in part from regular university men who went on after taking their course at the university to take a shortened veterinary course?—Undoubtedly it would in my opinion.

1469. I mean this type of man—a man who goes from the secondary school to one of our universities; take Cambridge, and there takes a science course, possibly a science degree, and then comes for a veterinary course for, say, three years—would that type of man be a useful recruit for the veterinary profession?—He would be an extraordinarily useful recruit for the veterinary profession, and also an extraordinarily useful recruiting agent, and it would raise the status.

1470. Not merely his own coming in, but it would have a general effect?—Certainly, because boys and their parents would look round, and they would soon learn that university men were going in for veterinary work, and that at once would stamp the veterinary profession as being a possible career.

1471. You have had some experience of the examinations of veterinary students, I think?—Yes, seven years.

1472. As regards the kind of general scientific training, is there any room for improvement there? I am speaking not now of their specific veterinary work, but of their training in general science?—Certainly. Of course, I cannot speak about expert veterinary training.

1473. Leaving that out of account—I am speaking now of the general scientific training?—Yes. I was going to say that I was an examiner in Class A, which deals with the preliminary science. There is much to be desired, particularly in the schemes of study drawn up by the Royal College. For example, I was an examiner in biology to the Royal College, and I consider that the scheme of study drawn up in biology, and elementary zoology in particular, is quite out of date. I drew up one myself, an improvement which I believe was approved and afterwards pigeon-holed, and I have just looked up the scheme. It is quite out of date. I am not competent to judge of the others, but

I believe they could be improved, only I should like to add that in my experience the teaching in the colleges is very much better than you might expect from the schedules.

1474. Looking now to the man who is going to do high scientific and research work, do you think that it would be an advantage if we could attract a number of men who had had a wider scientific training in its earlier stages—I mean apart from specific veterinary training ?—Undoubtedly. I do not consider that the preliminary science training given to the ordinary veterinary surgeon is a suitable basis for research—most certainly not. I have been an examiner of ordinary medical students in Edinburgh and Aberdeen. In Edinburgh I was at the same moment an examiner in the University and an examiner in the Veterinary College, and the difference in the training is most marked.

1475. How does the training of the veterinary student, as regards general science, compare with the training for the intermediate stage of science ?—It does not compare with it for one moment. The training given for the intermediate science in an average university, is very much better than the training given for what is called Class A.

1476. Leaving out of account the specific veterinary work, you think that the intermediate stage would be a much better basis to build upon ?—Certainly. I do not think there could be two opinions about it.

1477. Of course, the degree stage we need not go on to ?—No.

1478. Going from that to what we call the broad foundation in general science, you think that is important ?—Yes, I think the foundation is important.

1479. In order to build up the good researcher afterwards ?—Quite.

1480. Will you take chemistry and physics and compare the standards there ?—No practical work at all is required by the regulations of the Royal College of Veterinary Surgeons. Of course, I know practical work is done in the colleges, but I doubt if it can be taken so much to heart by the student as if he were going to have a practical examination in it—which he does not get. There is merely a *vivâ voce* examination in chemistry and physics; it is a difficult thing to conduct, and cannot be satisfactory.

1481. Going from what we may call the broad foundation in general science and skipping for a moment specific veterinary training, and going to the training required for the higher appointments involved in research bearing on veterinary work either for the Board of Agriculture here, or for the Colonies, or abroad, in your opinion is anything further after the veterinary qualification desirable ?—Yes ; I have put a note in my précis to the effect that I think that not only should veterinary degrees where they exist be encouraged, but also that post-diploma qualifications deserve encouragement, such as the diploma in veterinary hygiene offered by the University of Liverpool, and the diploma in veterinary state medicine offered by your own University of Manchester. We intend to adopt similar lines at Bristol, and to offer a diploma in veterinary state medicine—in fact the name is copied from your diploma. It seems to me by encouraging this kind of work that you will attract some of the better men. They will see that there is something like a career to be had, and indeed, you cannot get the very best type of man unless you give him further training than the ordinary four years' veterinary training.

1482. For that kind of post-diploma training, with a view to doing research and investigatory work, is that work which would be done under some man of real scientific distinction ? You know what I am rather indicating —a distinction between what we call the competent teacher and the advanced man of science ?—Supposing, shall we say, a year of post training is given, I think it is extremely improbable that the student would do any research. I do not think that he would be fit to do research. His advanced training should be in an atmosphere of research and not in an institution which limited itself purely to teaching—of course, that might be either in this country or elsewhere. I have recently been in Sweden, and I was greatly impressed with the most wonderful veterinary institution they have near Stockholm ; I think it is the best equipped in Europe.

1483. You heard what fell from Mr. Hobday a little while ago, I believe ?—Yes, but he did not mention Stockholm, and that is why I alluded to it.

1484. You heard what he said about the value of a year of post-graduate work ?—Yes, I heard that.

1485. Six months in an English institution where teaching and research were going on and two or three or four months abroad ?—Yes.

1486. In your opinion is that a wise suggestion ?—If Mr. Hobday meant six months' advanced study and three months' research, I dissent, but if he meant simply six months' study in this country and three months' elsewhere, I think that a possibility ; but I should prefer to leave it quite open, because in one case it might be desirable to do all the study abroad, and in another case to do it all in this country.

1487. From your experience, and looking at the thing from the opportunities you have had of seeing what is going on as an examiner, do you think that such a course of studies as is given for the Liverpool, or Manchester, or the contemplated Bristol diploma, would be a useful course of study for the men who are going to take up these higher appointments after obtaining the veterinary qualification ?—Yes, certainly. In particular it is quite clear that bacteriological training must be at some first-rate institution, such as the University of Manchester. I should not think it desirable for a man to get an extra year to do bacteriological training in a veterinary college.

1488. It ought to be in some institution of what you call university rank ?—Yes.

1489. And under teachers who are engaged in research problems ?—Under teachers who are engaged in research themselves, certainly. That is particularly important in regard to various tropical diseases, and I think I heard you yourself suggest the Liverpool Tropical School.

1490. Yes, I mentioned that ?—That is the strongest thing.

1491. *Mutatis mutandis* that would apply to other institutions which had special facilities on special lines ? —Yes, and supposing some scheme were drafted and some bursaries given to selected institutions according to what they could give, some would go to one and some to the other.

1492. According to the special subjects taught there ?—Yes, on the ideal of the German universities—a man going to research goes to the university where he can get the best and most suitable instruction.

1493. You would leave it pretty freely open, supposing the institutions were of the kind of rank that you have indicated ?—Yes, I should leave it very free indeed.

1494. Have you had any facts before you which will enable you to form any opinion as to the importance of assisting men at that stage ?—Yes, I think it is very important indeed. Certain men, of course, would naturally go on, but in this particular case you are dealing with a product—I mean the veterinary surgeon who has been through his training—that has cost so much to produce, and coming probably no doubt from parents who are not so well off as the parents whose sons become ordinary medical men ; and therefore, when the qualification is taken, it is more important for people like that who are not so well off to get some aid than the ordinary medical man—I think it follows.

1495. Taking it particularly amongst good, capable, and earnest men, who have got their veterinary qualification, and wish to qualify for the highest work in the State service, you think some financial support for that year is important ?—Not only important, but also essential, if you are going to get them in any quantities.

1496. You cannot otherwise get the men at that stage ?—No, except in the rare cases of people who have chosen the veterinary profession simply through having a liking for it. You would not get the others in any numbers.

1497. Supposing a year's post-graduate training were required, what in your opinion would be the minimum value for a reasonably careful and economical man of the kind of scholarship which should be given?—Of course, I heard Mr. Hobday's evidence. I think the sum which has already been reached for research scholars in agriculture, and so forth, 150*l.* a year, may be taken as an average. I quite agree with Mr. Hobday, but as the different kinds of training cost different sums, it would not be wise, in my opinion, to have a hard-and-fast figure. I mean 100*l.* a year might do more for a man who is studying in some continental centre, where the living and instruction are cheap, than 150*l.* might do for a man in an expensive centre in the United Kingdom.

1498. You would allow some margin; you would have a minimum and a maximum limit?—Yes.

1499. And a free choice amongst institutions of the right rank?—Yes, and it seems to me you could provide for cases of different degrees of worldly wealth. I mean a certain number of people would be willing to take a year's training if simply their fees were paid.

1500. Have you thought at all of the mode of selection of such scholars—that is hardly a fair question, perhaps, so do not answer it if you would rather not. If, however, you have thought of the question, it is rather an important one?—I should suggest that a small expert committee would probably be the best means—a committee, I mean, including people qualified to judge upon the capabilities of the candidates in a scientific way, and also naturally including officers of the services that would have to place the men.

1501. Representatives of the various services, plus well-qualified scientific men, including, of course, qualified veterinary men?—Of course, yes.

1502. (*Sir Thomas Elliott.*) With regard to the post-graduate diploma, what period of work would be necessary for that?—How long would it take?

1503. Yes, how long would it take after qualification?—It is merely playing with post-graduate work or post-diploma work if you do not get a year's solid study, in my opinion.

1504. How long would the average man require in order to take either the Liverpool or Manchester or the proposed Bristol diploma at the present moment?—I have not studied that and I could not tell you. No doubt a year would be the proper period, but the Chairman could inform you as to that better than myself.

1505. (*Chairman.*) I forget whether we got it from Liverpool, but my impression is that it is about nine months?—An academic year.

(*Chairman.*) An academic year.

1506. (*Sir Thomas Elliott.*) That was rather a preliminary question to an inquiry as to whether you thought any State assistance was necessary in order to enable men to acquire this extra qualification?—I think it would be worth while to pick out the very best and give them the opportunity.

1507. I was thinking not so much of the men who were to hold research appointments or teaching appointments, or the higher administrative appointments, as of the men who are going to do the regular routine work of the profession?—I do not think that that kind of post-diploma work would be necessary for the ordinary routine man, except that I did note the case of meat inspection—I do not know whether you call that routine work.

1508. Yes?—I think a man might very well go through a three months' course of practice under an actual meat inspector. I do not think a year would be necessary in a case of that kind.

1509. (*Chairman.*) Did you hear what Mr. Hobday said about meat inspection?—Yes.

1510. Do you agree with him with regard to that?—I was not following him very carefully, but I understood him to say, what I suggest in fact, that a veterinary student who was wanted for meat inspection should be put under a qualified inspector for some time before he was let loose. I think that was the essence of his evidence with regard to that, was it not?

1511. Yes?—In the case of meat inspection I am not at all sure that something more than that is not needed, because you see it is a matter of pathology partly, so that you might give some laboratory training as well as the training under the meat inspector. You could, in my opinion, very usefully give such a man six months' training.

1512. (*Sir Thomas Elliott.*) I take it you would say generally that the ordinary curriculum necessary in order to enable a veterinary surgeon to obtain his practising diploma imposes a very considerable financial burden upon the class of people from whom the veterinary profession is recruited?—Yes, it does.

1513. For that reason it would be legitimate for the State to give at different points special assistance in order to secure for the public services men of the high type that we require?—Certainly, I concur in that.

1514. (*Mr. Read.*) You referred to the question of post-graduate training in tropical veterinary medicine. You would probably agree that very suitable places for that would be Dr. Theiler's laboratory in South Africa, and similar institutions?—Certainly—only one place was mentioned as a matter of fact.

1515. Of course, living is very expensive in South Africa?—Yes.

1516. You were saying that you thought that these scholarships ought to be rather elastic?—Yes, quite.

1517. 150*l.* a year would probably not be sufficient to cover the expenses of living in South Africa?—Oh, no. In my opinion the training ought to be possible at any place that is considered suitable and the scholarship should cover the expense.

Professor SHERIDAN DELÉPINE, M.B., C.M., M.Sc., called and examined.

1518. I think you are Professor of Public Health and Bacteriology and Director of the Public Health Laboratory of the University of Manchester?—Yes.

1519. Those laboratories belong to the University, but are in separate buildings at some little distance from the University?—That is so.

1520. The work in the laboratories consists not only in research work and in teaching and investigatory work, but in public health work also?—Yes.

1521. You deal with all those branches?—Yes.

1522. With regard to the teaching work, are the people who are undergoing training in your laboratories practically in all cases men who have obtained either a medical or a veterinary qualification before entry?—Yes, that is so; nobody is admitted unless qualified except a few students for special research.

1523. Yes, but amongst those are men who are going in for what we call training?—Yes. Nobody is admitted for any training towards a diploma or any other post-graduate qualification unless that person has already a qualification either medical or veterinary.

1524. Just to clear up two points. I understand from the note you have sent in that in your opinion the one portal system for admission to the profession is a desirable one?—I have no doubt whatever of that. By that, I mean admission to practice without any reference to academic status.

1525. As a qualification for practice?—Simply as a licence to practise.

1526. The majority of the students in your department are taking the course for the diploma in Public Health, I understand?—Yes.

1527. That has been in existence many years?—Yes.

1528. Was the institution of the diploma in Veterinary State Medicine subsequent?—Yes, it was. We felt the need of it almost immediately after the establishment of the courses for the diploma in Public Health, but the time for the institution of the diploma in Veterinary State Medicine was not ripe, and the matter had to be left over for nearly 10 years.

1529. When the question arose in Manchester some years ago as to the establishment of a new veterinary school there, you advised the University against establishing a veterinary school?—Yes, I had no doubt that the establishment of an additional veterinary school in the kingdom would be a source of weakness both to the veterinary profession and to the University of Manchester.

1530. Your opinion, therefore, is against the course of multiplying the veterinary schools in this country?—Yes, there are enough veterinary colleges at the present time. What is wanted is rather to strengthen the existing colleges than do anything that might tend to weaken them.

1531. Do the same considerations apply to what we call the more advanced work which is added after the qualification has been obtained?—That is quite a different matter. What I say about the colleges applies to the training for the ordinary practice of the profession, that is, the diagnosis and treatment of disease; but with regard to the special scientific training which is needed for the discharge of special duties the requirements of which are not met by the training for ordinary practice, I think it is desirable that additional scientific training in the direction which is needed should be given wherever it can be best given.

1532. That is in laboratories conducted by men of scientific experience, and where research and teaching is going on?—That is so.

1533. Do you find that there is any demand existing amongst qualified veterinary men for that further and higher training?—There has been a very great demand in the north of England. I cannot speak for the south, but I think from hearsay that the feeling is that the same want has been experienced in the south. In the north, I can say that during the last eight years, without speaking of the previous period, not less than between 60 and 70 men who were engaged in public work, or were simply in practice, have applied to me for facilities in the laboratory to do work partly in the direction of research and partly in the direction of improving their knowledge of certain modern developments of science.

1534. Has that been largely on the subject of what you may call things that affect both the spread and prevention of disease, and also the question of hygiene generally?—Yes, the first thing in which they were interested was diagnosis. They possibly feel the need of their knowledge being brought up to the present state of science. That is a constant requirement which relates as well to practice as administration. Then they wished to be made familiar with the modes of spread and the new methods of prevention of disease, and with methods of administration—the way in which the State can control disease.

1535. Of those men in all cases, has there been anything in the way of financial support or encouragement given to them, or have they come at their own expense?—They have come at their own expense, and I know that in several cases this has been at the cost of very great sacrifice; I have interviewed most of these men, and I have been in some cases, very much against my wishes, obliged to advise them not to take courses of this kind because I was not in a position to tell them that at the end of their course, or within a reasonable time, there would be an opening for them, and there being no probable opening, it seemed to me almost cruel to let these men spend money, of which they had little to spare, to come and study, and, from a pecuniary point of view, waste the time which they might use profitably to themselves by following their ordinary career.

1536. I think as a matter of fact you have only had about 27 men taking this special diploma?—We have had 36 men who have worked in the laboratory in the last eight years, and of these only 27 have taken the full course and presented themseves for examination at the end of the course. Some who had taken the course out of the 36 withdrew because they found they could not afford the time, or were losing part of their practice while attending the course. Of the remaining 27, there were seven who were really quite incompetent.

1537. Supposing there were a fair certainty of a man who had got his veterinary qualification plus that post-graduate study of a year, and if those men whose financial resources were small were helped in some way by bursaries, do you think the supply would be increased of suitable men for the State service?—I should think it would be increased by about one-third or more. I think we would get among those who would come some very much better men than some of those we have had. Several of the men who have worked at the laboratory have been extremely good men. Among these were men who had means and who came to work at the laboratory because they were anxious to do some advanced work. They could afford to do it, and therefore it did not matter to them whether it led to anything or not.

1538. Really, if assistance could be given to qualified men to take a post-graduate course with a reasonable chance of an early appointment afterwards in the State service, do you think that a large number of highly qualified men for research work would be found?—I think there would be a larger number than at present. I do not know that there would be a larger number for research, but there would be a larger number for advanced work.

1539. Thank you. I was using the term "research" too vaguely—for advanced work for the higher appointments or administrative or research or investigatory work, as the case may be?—Yes, of course many men of the advanced type would be very useful in assisting other men who were able to direct research. Might I qualify what I have said? By assistance I mean sometimes the remission of fees—that would be by means of scholarships provided by the State. In other cases the assistance would imply also some amount of sustenance or entire sustenance.

1540. With regard to the instruction and supervision of the work for those who are going in for advanced work in Veterinary State Medicine, is the teaching carried on partly by the same professors and demonstrators as deal with the public health in part?—Yes, the parts of the teaching which are common to medicine and to veterinary science in my department are taken by teachers who belong to the medical profession or the chemical profession.

1541. Does the chemical work for these men go on in your laboratories or under a special teacher in the chemical laboratory of the University?—We have in my department a special teacher who has paid special attention to those branches of chemistry which bear on public health. He is also a very competent chemist.

1542. In addition to the staff which is common to the public health and the medical department, such as yourself and the chemist, do you also have associated in this teaching work and lecturing members of the veterinary profession?—Yes, we have three members of the veterinary profession, one who deals with administration more especially, one who deals with the inspection of live animals and farm stock, sheep and so on, and one who deals more especially with meat inspection. They have all taken courses in the department, and are all qualified veterinary surgeons.

1543. You devote some special attention to the diseases of animals communicable to men?—Yes, we pay marked attention to that. We have a three months' course entirely devoted to these diseases.

1544. Teaching work, and in connection with that teaching work investigations as well?—Yes, I may mention in that respect that our field of work is limited for certain reasons. It is limited because the only material available for investigation is that referred to us by health authorities both in regard to inspection of meat and diseases of animals communicable to man, but there are certain diseases which we have no access to—for instance, if there was an outbreak of pleuro-pneumonia or an outbreak of swine fever, or an outbreak of foot and mouth disease, or even an outbreak of anthrax, opportunities for study would be quite inadequate. Only a few things would reach us incidentally. The investigation of these outbreaks is centred in London in the Board of Agriculture, and we could not without breaking the law, or only by permission of the Board of Agriculture, get access directly to any information. I know the officers of the Board of Agriculture have always been extremely obliging to us and supplied us with material when we have asked for it, but it was material not suitable for investigation. So that we are somewhat handicapped.

1545. I think there is a special advisory committee consisting of public health officers and others in connection with your department?—Yes, chairmen of committees, and medical officers of health representing the local authorities of Lancashire, Cheshire, Manchester, Salford, and other places are appointed. We had also on the committee a veterinary surgeon, but he was not able to attend regularly, and the result was that his name fell out of the list.

1546. When a suitable man appears there is no objection to have him on the committee?—No, it was the intention to make the committee fully representative of all authorities interested in the work of the laboratory. If the Board of Agriculture had taken any notice of our laboratory I think it would have been quite natural to include representatives of the committees dealing with contagious diseases of animals in both counties, and it would be quite easy to treat them exactly in the same way as other authorities.

1547. (*Sir Thomas Elliott.*) I think that through your post-graduate courses and the course for the diploma of Veterinary State Medicine you have had an opportunity of judging of the qualifications of a very considerable number of men who have passed through the ordinary curriculum and obtained their practising diploma?—Yes.

1548. You are aware, of course, that the object of the present inquiry is to ascertain whether the requirements of the public service are at present sufficiently met, and, if not, what steps should be taken to supply any deficiency?—Yes, I was informed so.

1549. I gather that you would say emphatically that the ordinary professional curriculum is not sufficient to give to the public service the men that the public service requires?—Yes. I would like to qualify this by saying that of the men qualified many would be competent to act in the public services, because they would fit themselves by working on their own account after they have obtained their qualification, but I do not think that the qualification would imply that the questions which would come before them afterwards had been considered by them before they obtained their qualification.

1550. You would agree, would you not, with the evidence of many previous witnesses, that it is necessary that the ordinary professional curriculum should be supplemented?—Yes. I would say even more, that, if there was a possibility of directing the training of men suitable for the public services, it would be better to take them earlier than after the end of their professional studies. I think efforts should be made to induce the men to have a sounder scientific preliminary training than they have.

1551. You would suggest that we should endeavour to attract to the veterinary colleges, with a view ultimately to recruiting the public veterinary services, men whose general scientific training has been superior to the general scientific training of the average veterinary student?—That is my opinion.

1552. That is your view, based on your experience of the men who have come under your teaching?—Yes. The basis of my statement is that I find that veterinary men who have passed their final examination—men who appear to me to be quite capable of doing extremely good work—are handicapped by the want of some elementary knowledge of physical, chemical and biological methods. They know just enough; they know in fact sometimes more than is necessary for ordinary practice; but if they had to develop afterwards into men who had to deal with extremely complicated questions, they would have to learn under very great difficulties what they had not learnt early in life.

1553. You recognise that at that early stage in their educational career it would be impossible to give them a definite offer of employment?—It would be impossible. The only way to get at what is wanted would be, by means of scholarships, to encourage men of promise to study, Among those men there would certainly be a larger number of men suitable for public services than among the ordinary men, that is to say, you might for every five men you wanted have to prepare ten or fifteen.

1554. Would you make the possession of a science degree a condition of the award of a scholarship?—I think that would be a good way—an ordinary science degree—the subjects being selected carefully, so as to be of use afterwards—an ordinary science degree, or an honours science degree would indicate the candidates who would be likely to be desirable afterwards.

1555. What sort of sum do you think would be required to attract to the veterinary colleges men of that type? Do you think that a scholarship of 80*l.* a year, for instance—if I may mention a figure—would be sufficient to attract to the veterinary profession for professional and further training men already possessing a general scientific training?—I would not like to fix any figure. My impression is that something of that kind would be useful, but I do not know intimately the private affairs of the members of the veterinary profession sufficiently well to be able to express an opinion as to the figure.

1556. Then, as regards the ordinary professional training, do you think that any modifications of that are called for in order that we may get into the public services men of the type we want?—No, I should say if once you started with men who had a good scientific training the best thing would be for them to know exactly the routine of their profession before they went further. They should have a good preliminary scientific training; then an ordinary training for ordinary practice, so that they should be able to judge of the standard of knowledge of the men they would have to deal with afterwards, and then, after that, they should have special training which would fit them for the special branch of the service which they wanted to enter.

1557. Over what period would that special training extend?—The period of post-graduate training, I think should be a year. We have attempted to do the work in six months, and we have succeeded, within certain limits, in doing good work, but there is no doubt that the first three months of the six months' training under the present conditions are generally wasted in teaching elementary matters in order that the men may be able to benefit by what we have to teach specially.

1558. That waste of time would be avoided by the selection of men who had already received that general training?—Yes, exactly. By post-graduate training I mean one year in advanced studies, including laboratory studies, but I think no man could be fitted for any public service without going as a probationer in the service for another year afterwards. It would be very difficult on the basis of a mere scientific training to see whether a man would be able to manage administrative work satisfactorily. There are two qualities wanted. One is a sound scientific knowledge, and the other is a knowledge of men and matters which would allow an officer to find his way through difficulties.

1559. Do you think it is necessary for the State to give any facilities to men to enable them to take that additional year's course?—I think it would be a very desirable thing. Most of the men I know have spoken to me about their private affairs, and I was surprised in many cases at the importance of the sacrifices which the men have had to make in order to take post-graduate courses, and I was rather struck with the fact that these men were making those sacrifices without knowing whether it would advance their prospects.

1560. With regard to the places in which the special year's study should be carried on, have you any ideas?—The places should be those where the men can acquire any special knowledge which would be useful to them afterwards. I think that as regards service in India or in the Colonies University laboratories, where opportunities are offered to study tropical diseases, are particularly suitable. I know that in London, at the Veterinary College, Professor MacFadyean has instituted post-graduate courses of great value and specially suitable for these men. In Liverpool there is a Tropical School of Medicine which has allowed also the veterinary profession to get access to material which they could not get access to so easily elsewhere. In Manchester we have paid more special attention to home diseases, and adminstrative work so far as regards the home diseases. So that it would be difficult to say that any one place should be considered the only one suitable, and it might be desirable to allow some of the men to pass from one place to another.

1561. You would say that the selection of a place at which that one year's additional study should be carried on would in a great measure depend upon the particular direction in which the man wished to specialise afterwards ?—Yes, that is so.

1562. Supposing, for instance, he wished to pursue his studies in regard to tropical disease, he might choose Liverpool or he might go out to South Africa ?—Yes.

1563. His selection would depend upon his objective as it were ?—Just so. It would be for the Board of Agriculture or for any other Department wanting to employ these men to find out the places where the training can be obtained, and then tell the men that if they work at such and such a place the time they work there will be recognised if they show afterwards that they have made good use of the time.

1564. As regards the selection both of scholars already possessing a scientific degree and who are willing to receive the ordinary professional training, and of men who, having completed their professional training, are willing to take a research scholarship or a scholarship for higher professional instruction, what method of selection would you suggest* ?—That is always a very difficult matter. I think one of the simplest ways would be to have from each place where instruction is given men nominated as likely to be able to undertake the duties. Then the Boards wanting the services of these men having from the various places a list of recommended men, they could select from among them those that seemed to offer the greatest chance of success afterwards, and it might be necessary for them after receiving these lists to select candidates by means of some practical examination. But I think in the first instance the Board of Agriculture, for example, might receive names from various institutions where the training had been conducted.

1565. Are you familiar with the mode in which the scholarships already created by the Board of Agriculture are filled ?—No, I am not.

1566. You would agree, would you not, that for the selection of men who are to receive scholarships in order to enable them to take their professional course, the assistance of scientific men is necessary ?—For the selection ?

1567. Yes ?—Oh, yes.

1568. It would be impossible, would it not, for purely administrative and executive officers to form a judgment as to the professional potentialities of the men ?—That depends entirely. If the Board were willing to accept nominations by competent teaching institutions and consider the grounds upon which the nominations had been made, it would not require any scientific knowledge; in fact, it would be more a question of knowledge of men and of the way in which the nominations had been made; but if the Board wanted to test the value of the nominations by additional examination it would be necessary to have the advice of scientific examiners.

1569. At any rate in your judgment the selection is a matter which is very important and by no means free from difficulty ?—Yes, it is a very difficult matter.

1570. With regard to the post-graduate course which, I think, you give at Manchester, over what period does that extend ?—Six months.

1571. The corresponding course at the Royal Veterinary College is much shorter, is it not ?—Yes, it is somewhere about three months. Our six months represents a course of 22 weeks of ten hours at least a week in the laboratories, that is, 220 hours, and more than an equal time of work outside with veterinary inspectors.

1572. Have you any suggestions to make by which more men can be encouraged to take a post-graduate course—something short of the year's course that you have indicated as being necessary in the case of the high public appointments—a short post-graduate course which would assist them to get work under the different public health authorities; possibly not very extensive work, but work of meat inspection, for example ?—I think that the chief difficulties are those of paying the fees, which are not very large, and those of living away from their practice for a time and having to leave somebody to take care of their practice meanwhile, because most of these men enter into practice immediately after qualifying either as assistants or as chiefs—and that is a source of difficulty. Those that live far away from a laboratory are obliged to leave the town in which they live and come for six months, or whatever the period is, to the laboratory.

1573. Do you find that the local authorities are willing to recognise the value of your diploma ?—I think they are willing enough, but there are very few appointments as yet. Very few appointments of veterinary surgeons are made by sanitary authorities, and there are many places still where meat inspectors are appointed without having any veterinary qualifications, and until those matters are settled it is difficult to express an opinion.

1574. Speaking generally, the number of appointments, not very well paid, but involving the receipt of fees and sometimes of small salaries, taking the country as a whole, is pretty considerable ?—It is larger now than it was some years ago.

1575. Seeing that the desirability of this post-graduate study is so universally recognised, I wonder whether it would be possible for these local authorities to take into account the fact that men had gone through this course of post-graduate study before making their appointments ?—I think that would be a very desirable thing, but that recommendation would have to come from the Local Government Board, and we have no recommendation yet to that effect.

1576. I rather thought that it was your view that people were not very much encouraged to take these post-graduate courses, because they did not think that, even if they took them and got their diploma, they would benefit at all by them ? — Well, there is no guarantee that they will benefit. There is no reason why the authorities should appoint a man with a qualification rather than a man without a qualification, unless they please to do so. That is not the case with medical officers of health where there is a definite rule that an authority of 50,000 inhabitants would not be empowered to appoint a man who has not a public health qualification.

1577. You think that the time has come when the possession of a diploma indicating that a man has taken a post-graduate course should be considered an essential, as indicating that a man is qualified for an appointment in a public capacity ?—Yes, that is my opinion.

1578. You are aware that at the moment the only qualification is that a man must be qualified as a member of the veterinary profession ?—Yes, that is so.

1579. You think that the time has come when that elementary qualification, as it were, might be supplemented by the special qualification of having obtained a diploma in Veterinary State Medicine ?—Yes. Of course, I have in mind a wider thing than the appointment of veterinary inspectors under sanitary authorities. I believe that the time has come—of course, I know I am speaking before the only authority that has power in this matter—when every county will have a veterinary staff.

1580. You know that every local authority is compelled already to have at least one veterinary inspector ?

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* When returning a proof of his evidence the witness explained that he understood this and the following questions to refer to the selection of candidates for public appointments, not for scholarships, and his replies must be understood accordingly.

—I know that, but the veterinary inspector has in most cases an entirely inadequate stipend, and he cannot devote the whole of his time to the work. The staff of veterinary inspectors that I am thinking of would be a staff of men devoting the whole of their time to the work—under the general control of the Board of Agriculture.

1581. I take it, in any case, you take the same view as other witnesses have taken, that is, that in considering our report we must not only take into account the existing requirements so far as regards veterinary surgeons, but the certainty that as time goes on additional public use will be made of the services of the veterinary profession?—That is what I understand. It is because I believe that it is the intention of the Board to extend the service that I suggest special post-graduate training as essential to the production of the kind of men that will be necessary when the time comes to appoint them.

1582. But you think that even now the time has come when we might fairly say that before a man shall occupy the position of a public veterinary inspector he should have something more than the ordinary professional qualification necessary to enable him to practise?—Yes, certainly.

1583. (*Mr. Drake.*) Yot have told us that you have been closely in touch with the private affairs of the students who come to your laboratory?—Yes.

1584. Do you think that any student of those whom you have seen, or men like them, who had the definite offer of an appointment in India in the Indian Civil Veterinary Department at an initial salary of 400*l.* a year, on the condition that he went through your course at his own expense, would be likely to refuse to do so, or to require any pecuniary inducement to do so?—I think there would be no doubt that at least half of those I have talked to would have jumped at an offer of that kind, but there is a difficulty about such an offer. You cannot make it before the man has been trained; that would be futile; you would have to make the offer to him after he has finished his course.

1585. Assuming that we have already found it necessary, not finding a man who has done a post-graduate course, to ask a candidate to go through a post-graduate course, and tell him that if he will do so he will be appointed, do you think in that case there is any man who would want an extra pecuniary inducement to go through the course?—I do not think so in that case. He would not in most cases. With the 400*l.* there would be with a prospect of rise, I suppose?

1586. Yes, it rises to about 900*l.* or 1,000*l.*?—Yes, I know several men, and very good men, who, if they had known before they started their post-graduate course, that they were certain to obtain an appointment at the end, would, instead of working six months, have worked a year quite willingly. The only difficulty, of course, has so far been that the men, before they started, had no prospect at all. With regard to an Indian appointment, if you were speaking of the University of Manchester, I would suggest that a man should spend half the time in Manchester, and the other half in a place where tropical medicine was specially studied and taught.

1587. Do you think that the vacancies that occur in the different services are now thoroughly brought to the knowledge of the students who are going through your course?—I would not be able to inform them myself as to that, because I do not know enough about the various vacancies at the present time.

1588. They have to find out for themselves?—I know a few particulars about appointments, but I do not know the whole of them.

1589. I do not mean the terms and conditions of the appointment, but the actual existence of a vacancy when it occurs. When the India Office, for instance, is wanting a man, is that fact known sufficiently to your students?—They probably know of it, but I cannot tell them, because I do not know it myself.

1590. They have to find out for themselves?—They have to find out for themselves, and it would be of great assistance if places like my laboratory were informed from time to time of the vacancies that occur, but they are not at present.

1591. (*Sir Thomas Elliott.*) Have you an Appointments Board in the University of Manchester?—No.

1592. You are aware, of course, that in some Universities there is a regular Appointments Board with whom public departments can communicate when they have vacancies that require to be filled?—So far as my department is concerned, we have nothing of the kind. I am keeping notes of anything that comes to my knowledge, and I communicate this information to my students. It would be of great assistance to me if notification were made—if we got information automatically about these matters. One would then be able not only to advise promising students of vacancies, but to keep away other students who were unsuitable to fill the vacancies.

Winchester House, 21, St. James's Square, S.W.

SIXTH DAY.

Saturday, 30th November 1912.

PRESENT:

SIR ALFRED HOPKINSON, K.C. (*Chairman*).

Sir THOMAS H. ELLIOTT, K.C.B.
Mr. H. J. READ, C.M.G.

Mr. FRANCIS C. DRAKE.
Mr. H. L. FRENCH (*Secretary*).

Professor T. B. WOOD, M.A., called and examined.

1593. (*Chairman.*) I think you are a Fellow of Gonville and Caius College, Cambridge?—Yes.

1594. You are also Drapers Professor of Agriculture in the University of Cambridge?—Yes.

1595. As regards the requirements of the public services you deal with those under three branches in your précis, and I think we may take it from your memorandum as it stands. Have you at Cambridge any diploma in Veterinary Hygiene, or anything comparable to your diploma in Public Health?—No, not at present.

1596. You say in your précis that you are not aware of the existence of a diploma in Veterinary Hygiene or any similar subject. Are you not aware that at Manchester and Liverpool there are diplomas of that kind?—I did not know that.

1597. I mean exactly on the same lines as the diploma in Public Health?—Yes.

1598. Are you aware whether that is the case at any of the other universities in England?—No, I am not aware of it; I was not aware that there were any at Manchester.

1599. And there is one also at Liverpool ?—Yes.

1600. Do you have at Cambridge any training in veterinary work for men either before they have obtained their qualification or after ?—No, we have nothing that is called veterinary work. Of course we have rather a flourishing department which works at animal diseases ; that is the department under the Quick Professor of Protozoology.

1601. That we should rather like to hear about. Would you just tell us something of the kind of work done there so far as it is likely to bear on veterinary science—I mean both as regards research work and teaching work ?—The Quick Professor is not supposed to teach veterinary work. It is rather a peculiar professorship. It was founded by a man named Frederick James Quick 15 years ago. He left an endowment amounting to somewhere between 1,200*l.* and 1,500*l.* a year, according to the interest the stocks yield, and I think 1,000*l.* a year of that goes to the salary of the Quick Professor. The rest goes to the upkeep of his department. The subject of the Quick professorship may vary, but it was decided, at any rate to begin with, that it should be protozoology, and Dr. Nuttall was appointed Quick Professor. He has got together quite a flourishing department. He has a wing of the medical school devoted to his work, and he has bought 5 acres of land himself adjoining our field laboratories, where he keeps his animals, and has assistants at work.

1602. Taking it quite shortly, from your knowledge of these laboratories in the University of Cambridge, are there laboratories in which work is carried on which in your opinion would be useful for men who had already got a veterinary qualification ?—Yes, I think there would be in this department that I have mentioned.

1603. Research is carried on in that department which you think would be useful to qualified men for advanced veterinary work ? — Yes, I should say so, certainly.

1604. Men who had already got their qualifications ?—Yes.

1605. (*Mr. Read.*) Professor Nuttall specialises particularly on ticks, I think ?—Yes, and protozoa carried by ticks. Red-water fever is the thing he is working at chiefly.

1606. He does a great deal of work for scientific commissions which are sent out to the Tropics from this country—such as Sir David Bruce's Commission ?—Yes.

1607. (*Chairman.*) That kind of work and investigation would be very useful for veterinary men ?—Yes, I should say so, certainly. I know to people in the colonies it would be so. He gets a subsidy from the Colonial Office in virtue of the work he is doing in his department.

1608. Work as regards animals ?—Yes. Veterinary people from South Africa, and various other colonies, come over to work at these parasitic diseases with him.

1609. (*Mr. Read.*) I do not think that he confines it necessarily to animals ?—No.

1610. (*Chairman.*) No, I did not mean that. I meant that animals were not excluded ; in fact, it is a department for scientific investigation which would be useful both in dealing with animals and for other purposes as well ?—Yes, certainly. Of course, he has worked chiefly at protozoology connected with animal diseases.

1611. At present do any of the men go on from Cambridge into veterinary work, do you know ?—I do not think so at present ; I have pointed out the difficulty of that in my précis.

1612. On that point, to take the case of a man who has been at Cambridge studying science, and who wishes to qualify for veterinary work, is it, in your opinion, either practicable or necessary for him to take a four years' course at a veterinary college afterwards ?—No, I think it is not ; I think that is the difficulty.

1613. Would you put it as both unnecessary and impracticable ?—I should do so, certainly. If some arrangement could be made by which a Cambridge man wishing to take veterinary work could be put on the same footing as a Cambridge man wishing to take medical work, I imagine a number of men would take veterinary work.

1614. That is by taking the preliminary scientific subjects at Cambridge and then going on to specific technical veterinary work at one of the veterinary colleges ?—Yes, that is so. If the veterinary colleges would do the same as a great many of the hospitals do, not necessarily give it up but allow people to do their preliminary scientific work elsewhere and get credit for it, it would be an excellent thing.

1615. Without some such regulation as that it would be impossible practically, in your opinion, to get men from Cambridge into the veterinary profession ?—I think it would, because I do not see how they could afford to tackle another four or five years' course.

1616. And even if they could afford it, you do not think that it is necessary for them to do their preliminary science all over again at the veterinary college ?—I should think not.

1617. Do you know enough of the work at Cambridge to say whether the preliminary scientific work in chemistry, biology, physiology, and so forth, that is done there would be of a more advanced and thorough character than would be possible at a veterinary college ?—They are done to the satisfaction of the General Medical Council, of course.

1618. Taking your own classes in agriculture as a specific subject of practical study, have the men who come to you studied natural science generally in the university and under regular professors of the subject ?—The majority of them have ; all the better ones.

1619. You find that that kind of general preliminary study of science turns out the best class of men for your purposes ?—Yes, far the best men for our purposes. Rather more than half of our advanced class consists of men who have taken the Natural Sciences Tripos.

1620. Summing up the recommendations in your précis with regard to getting men of the university type into the public veterinary service, you suggest, first, the regulation of veterinary colleges as regards admission ?—Yes, I think that is the first thing.

1621. So as to give special recognition to general scientific work done in the university ?—Yes, a modification somewhat on the lines of the medical arrangements.

1622. Then, as regards the teaching of these scientific subjects, with a view to more elaborate and detailed research work afterwards, do you think that there is a basis for subsequent advance work in the training given, we will say, for a natural science degree ?—That has proved to be so with the agricultural men. A man who has taken an honours degree in science, and then turns over to agriculture, becomes a very capable man afterwards.

1623. Capable of going further ?—Yes.

1624. Going from that early stage to the later stage with regard to post-graduate work for veterinary men, do you know enough of the training of veterinary men to know that some post-graduate work is desirable for those who want to take up the higher appointments —by post-graduate I mean post-diploma work ?—After the diploma in Veterinary Hygiene ?

1625. After taking their veterinary qualification ?—Yes, I think it is necessary, just as has proved to be the case in the medical world. Practically, every man who gets a public appointment nowadays of a medical nature has done post-graduate work for a diploma in Public Health.

1626. For what period ?—Our diploma people cannot go in for their diploma in Public Health until two years after they are qualified, so that they have to take up some kind of appointment for a year and then do a year's training in the university.

1627. With regard to the place at which such work is done, can you say, from what you know of the Quick professorship, and judging by your experience of your own work, whether you think it is more desirable that such work should be done in one place only, or whether the work should be done in a number of different institutions which might be selected by you or chosen by the students subject to your approval ?—My opinion is that competition between places of that sort is a very good thing.

1628. You may find a teacher who is specially qualified in one particular subject at one place, and a teacher specially qualified in another subject at another place?—Quite so. You find certain things done specially well at one place, and other things done specially well at another.

1629. You would allow a certain amount of free trade, as it were, in the choice, subject to the institutions being approved as efficient?—Certainly.

1630. You think that in that way you would get a better quality and a greater variety of men?—Yes, I think you enlarge the field so much from which you can pick your men.

1631. That is your experience of what is rather analogous, agricultural training?—Yes.

1632. Do you think if the changes, which I understand you allude to as a modification of the regulations of the veterinary colleges—— ?—Yes.

1633. If those changes are made with a view to encouraging young men who have already a broad scientific training to go into veterinary science under those modified conditions, plus post-graduate training at selected institutions, do you think it would have an important effect on the class of men coming into the veterinary profession?—Yes, I think that kind of arrangement seems to work very well in the medical world, and I think it has worked very well in agriculture.

1634. Are there any further suggestions you could make to us, having regard to the object of this Committee which, as you know, is to see what can be done to improve the supply of veterinary officers for the State service?—I have thought this thing over very carefully, and talked over the subject with my agricultural and medical colleagues in Cambridge, and I think the suggestions I have made in my précis embody my views on the subject.

1635. I think you have summarised them verbally as well as on paper?—Yes.

Professor GEORGES DREYER, M.A., M.D., called and examined.

1636. (*Chairman.*) I think you are Professor of Pathology in the University of Oxford?—Yes.

1637. You know, of course, the object of our inquiry, and you are kindly prepared to give us the assistance of your experience with regard to it?—Yes.

1638. You have no training at Oxford for the veterinary qualification, I think?—No, none whatever at present.

1639. Have you any post-graduate diploma, or any post-graduate work bearing on veterinary science?—We have, in the case of the doctors, the diploma in Public Health, but not for veterinary work.

1640. Do you know whether any Oxford men at all qualify as veterinary men?—As far as I know, none has at present done it.

1641. Do you think if the science work done in Oxford were recognised by the veterinary colleges as shortening their courses there would be a chance of Oxford men taking up the veterinary profession?—I think it might be a possibility—that men would go in for veterinary training if it might open good positions later in life, but as it stands at present I hardly think there is sufficient encouragement.

1642. By reason of the nature of the appointments?—Yes.

1643. Have you anything in the nature of training at Oxford now which would be suitable for men who wished, after obtaining their qualification, to take up special branches of study bearing on veterinary science?—I should hardly say that such a training at present exists, but it might be possible to adapt some of the training for that purpose.

1643A. Some of the training that is going on in some of the scientific departments of the University?—Yes; of course whether the University would be prepared to do it I cannot say, but there are such departments, and I think it would be very useful.

1644. You have not, at present, in the University of Oxford any diploma in Veterinary Science, like the diploma in Public Health—you have the diploma in Public Health at Oxford?—Yes.

1645. You have nothing of the kind in veterinary science?—No, not at present.

1646. Do you think that such a diploma would be a useful thing?—I think it would be extremely useful if it was made of a very high standard.

1647. That is that nobody should be admitted to it but men who had got their qualification, and who had some natural adaptation for that class of work?—Yes.

1648. You are aware that at Liverpool and Manchester such a diploma exists?—Yes.

1649. And you see no reason why there should not be one at Oxford and Cambridge?—No. I think it would be a good thing if you could get the standard raised, and possibly a special diploma for such officers as are to be appointed to the leading positions. I think one might with advantage draw a distinction between the ordinary veterinary surgeon and the men that you wish to appoint in leading positions.

1650. About when would you make their training begin—after taking their qualification, or before?—I should try to attempt to induce the men to make up their minds early whether they intend to go in for scientific training or not—that is to say, I would try to encourage university men to take up veterinary science as a branch, possibly of medicine, or together with medicine.

1651. Can you sketch what, in your opinion, would be the ideal training for such men?—I think I might be able to.

1652. Could you just give us an indication of it? Do not answer if you think you would not like to do it without further consideration, but if you can say, we should rather like to know what, in your opinion, would be the ideal training for a man who was going to do that advanced veterinary work?—I think the training that he would get to become a qualified medical man, and then if he had qualified I should make it easy for him to pass his veterinary qualification.

1653. A qualified medical man?—Yes, if he had a medical degree first; if not, I should say that he would have to spend, as the teaching is now, about 18 months or so after he has qualified as a veterinary surgeon to enable himself to get the proper scientific training and practical training.

1654. Where should that subsequent educational work be taken, and what should it consist of?—Possibly an increased knowledge of chemistry would be essential to begin with, and then the more practical subjects, such as bacteriology in its connection with the prevention of disease, and in connection with this, again, the teaching in subjects of parasitology, tropical medicine where the diseases of man and animal overlap, and such diseases as are actually carried by insects, possibly through animal to man, animal being the intermediate host. One of the difficulties, as far as I can see at present, is that possibly the veterinary surgeon does not know sufficient about the diseases in man, and very often the physician or the medical graduate does not know enough about the diseases in animals, and if the Crown is going to make use of the veterinary surgeon for the purpose of preventing the spread of disease in animals, for instance, and prevent the spreading of disease from animals to man, I think a special training would be a very great advantage.

1655. You have alluded to chemistry. Would it be a great advantage to a man who is going to take up such work after taking his veterinary qualification if he had really made a serious study of chemistry in his undergraduate days?—I think it would be better to have the chemistry, as you suggest, in his early days.

1656. At an early stage?—Yes.

1657. There is just one other question about the place where such work should be carried on. Would you confine it to one place, or would you leave it open to any university affording the advanced study of the kind required?—One question is how great the number of candidates might be. If there were a large number of candidates I should throw it open. If the number of candidates were limited, I should confine it to one place and let the Government have a hand in the teaching; that is to say, lay down definite rules.

1658. Supposing a man were going to India, or to one of the tropical colonies, such a place as the Liverpool College of Tropical Medicine would be a suitable place for him to go to?—Yes; for one branch of it I think that might be a very suitable place.

1659. It would depend on the particular branch of the special class of work to be taken up?—Yes.

1660. It is not uniform, it is varied at present?—Yes, and I should like to see it as uniform as possible.

1661. You would like to see the same thing for the home service as for the tropical service exactly throughout?—Yes.

1662. And allied to medical training?—Yes, I think that would be possibly the right thing to do.

1663. (*Mr. Read.*) I see that you suggest in your scheme special courses of instruction and training in tropical diseases of animals?—Yes.

1664. Would not that be rather a difficult matter to arrange at Oxford—to get the necessary material?—Yes, it would in a way, but, on the other hand, I think through the kindness of various people, we might be able to get specimens and be able to show them really as much as you are able to show them anywhere in a place where you do not actually have the disease. Of course, the extent to which the University either might be willing or able to carry out such a scheme would depend greatly on the help it might expect.

Mr. William Hunting, F.R.C.V.S., called and examined.

1666. (*Chairman.*) I think you are a Fellow of the Royal College of Veterinary Surgeons?—Yes.

1667. Until recently Chief Veterinary Inspector to the London County Council?—Yes.

1668. You have also acted as examiner for the Royal College of Veterinary Surgeons?—Yes.

1669. You are pretty well acquainted with the numbers of men taking qualification?—Yes.

1670. What proportion would you say go into general practice, and what into the public services—roughly?—The public services, perhaps 2 or 3 out of 50.

1671. Ten per cent. at all events would be an adequate figure?—Quite.

1672. Just dealing for one moment with the regular private practitioner, is the training for those and the examination—since the recent improvments—in your opinion quite satisfactory?—I think it is.

1673. Going from that to the State service, and considering the different branches, can you say how far you think any extra training, beyond what the veterinary colleges give, and what is required for the examination of the Royal College, is required in your opinion with regard to the various branches of the State service. Take them separately for the moment: take the Army first?—I do not think anything more need be done for the Army from an academic point of view. They themselves put men on probation for some time, and they have a school of their own.

1674. The arrangements in their case we may take it are quite satisfactory?—I think so.

1675. As regards Colonial appointments, do they require anything further in your opinion; you have had wide experience?—Yes. I think they distinctly do. They require a post-graduate course, which would be bacteriology chiefly. That is provided for to some extent. Manchester gives a certificate, and there is a post-graduate course at the Royal Veterinary College, Camden Town, and Liverpool offers a training too.

1676. That kind of training in your opinion for that special service is valuable, and, may we say, almost necessary?—I should say, quite necessary.

1677. With regard to the home service, does the same in your opinion apply to the Board of Agriculture?—Yes, but not to quite the same extent.

1678. Less in degree but similar in kind?—Yes.

1679. As regards India, what would you say?—India would be like one of the colonies. The education of course could be given here so far as bacteriology went, but in India you would have the clinical training as well, which is nearly as important.

1680. You would put the men for India and the Colonies as the ones that require most urgently and most fully their post-graduate training, and the same thing would apply, *mutatis mutandis*, but rather less in degree, to the home service?—Yes.

1681. With regard to municipal service, perhaps you would express your opinion on that subject?—There again, the post-graduate course would be necessary, and if it was varied at all there would be a little more chemistry, perhaps, for them on account of milk and other things they might have to analyse, but the bacteriology and the clinical training and meat inspection cannot be taught out of a book solely, or at a school. A man would have to do three months, or something of that sort, of practical work in order to get a practical acquaintance with meat inspection.

1682. That is a point I should rather like to follow up. The meat inspector requires a special post-graduate training?—Yes, and a technical training.

1683. That is, as you say, rather of a technical than a general scientific character?—Yes, because if a man is only taught pathology he would recognise the specimens if he saw them in the same way as the meat inspector does, but he would not know all about the technical joints, and that sort of thing. He wants the practical acquaintance with them.

1684. Does the same thing apply to some extent to milk inspection also?—Certainly.

1685. After the ordinary veterinary qualification we may take it that a man requires a certain amount of technical training to deal with these points?—Just so.

1686. How long would that take?—A man with pathological knowledge would pick up his meat inspection in three months, and the same with milk, he would pick up his milk inspection in three months.

1687. Does that training cover the kind of qualification you would require for your colonial men?—In a degree only.

1688. To take the meat inspector, his practical training would be under some experienced meat inspector, I suppose?—Yes.

1689. Not at a college?—Not at a college. The only way he would get that properly would be by being attached to an abbatoir in some subordinate position.

1690. In the nature of an apprenticeship?—Yes.

1691. To take the Indian and Colonial man, does he require advanced scientific training in bacteriology, and so forth?—Yes, certainly. He meets with new diseases there and a different kind of treatment for them is required. I do not mean medical treatment, but treatment in open spaces, and with natives who do not believe in animals being pole-axed. You have to acquire an epidemiological knowledge that will meet the case.

1692. Is not there a certain amount of research necessary into the question of the prevention of disease?—Quite so, and that research is more widely required abroad than here, because we have not so many diseases here that we do not know pretty nearly all about.

1693. To make it adequate that would be much more prolonged than the three months with the meat inspector?—Oh yes. He is never done with the other job, really. After twenty years of it he will find that he can still learn something more.

1694. It requires training under properly qualified scientific men?—Yes.

1695. Therefore, you have to select your men, because there are only certain men with the natural aptitude?—Quite so.

1696. I suppose for meat inspection any ordinary qualified man who has been properly trained will do well?—Yes.

1697. But in the other case it requires high scientific training and natural aptitude?—Quite so.

1698. You alluded to the importance of chemistry. In your opinion would it be advantageous or disadvantageous to get some men into the State service who had had what we might call a good early collegiate training in chemistry—like the men who have taken an Honours degree in Chemistry?—Yes, I do not think you can have too much.

1699. You cannot have too much for that class of man?—Not for that class of man.

1700. In the case of a subject like chemistry, it would be better taken at an early stage, and then the specific work at the Veterinary College might follow on, and then some advanced post-graduate work if he was then fit to take advantage of it?—Just so.

1701. (*Sir Thomas Elliott.*) You are very familiar with the work and duties of the inspectors of the Board of Agriculture, I think?—Yes.

1702. You have had an opportunity of forming an idea as to what their qualifications ought to be?—Yes.

1703. Do you think that they require post-graduate study after they have completed their ordinary professional curriculum?—I do.

1704. What sort of post-graduate study would you recommend?—Such as is carried out at the Royal Veterinary College.

1705. That course extends over a period of some 10 weeks, does it not?—That is so.

1706. Do you think that that is sufficient?—Of course it would be better if it could be made longer, but there must be a limit.

1707. Do you think it would serve the purpose of the Government to provide money facilities for enabling suitable men to take that post-graduate course?—Yes, I think if you could in some way select your men for these different departments—they select themselves in fact by their natural aptitude—and then if you could provide a longer post-graduate course it would be an advantage certainly, because I do not think that bacteriology ought to be the only subject taught in a post-graduate course.

1708. You think, to put it quite shortly, that it would be good business on the part of the State, as it were, to help in the training of the particular article it requires?—I certainly do think so; because the frightful losses which occur in this country, let alone the still more frightful losses that occur all over the Empire, would certainly be limited or controlled to some extent by the appointment of a better class of men.

1709. Therefore any expenditure which the State might embark upon in that direction would return to it many-fold?—Yes; it would be a profitable transaction for the State.

1710. (*Mr. Read.*) Just one point with regard to Colonial appointments. You were saying that these men who go into the Colonial service ought to have more post-graduate training. We are very fully alive to that at the Colonial Office, and we do what we can in the matter—I mean to say that as far as possible in the case of the men who are going to occupy these positions we try to get men who have had a course of training in tropical veterinary medicine—practical men who have gone through the post-graduate course at Camden Town for example. If they have not gone through a course of this kind we try to arrange that they shall?—Yes.

1711. (*Mr. Drake.*) Do you think that the post-graduate training of the men should differ according to the kind of appointment they are going to fill, whether Indian, Colonial, home or other?—No, I think that the course might be made wide enough to cover the lot, and yet not to be superfluous for any single one.

1712. Do you think, in fact, that the home officer ought to have the same training as those who are going to a tropical climate?—You could alter the amount of work, perhaps, in tropical disease, and increase the amount of other technical instruction for the home man. It is not a question I could answer off-hand. I do not think I have thought that out sufficiently, but I am inclined to think that it could be put all in one course for all places.

1713. Do you not think that it would be better that the course should be decided in each case with relation to the vacancy that is to be filled?—Yes, it would be if that were practicable.

1714. That would entail putting the man through the course after his selection for an appointment?—Yes.

1715. (*Chairman.*) There is one point in your précis which I am afraid we overlooked for the moment, that is with regard to the appointments themselves. Do you think there is anything there that requires alteration in order to secure good men? If you want men on the level of University trained men you will have to pay them better. You say you can get veterinary surgeons now for 300*l.* a year?—I do not know much about the other professions, but I expect you would not get them for that money.

1716. They want better prospects in their profession?—Yes, there is nothing to rise to in ours. When you get 300*l.* or 400*l.* a year you stick there.

1717. You want a better ultimate prospect?—Exactly.

1718. Do you know anything about the financial circumstances of the men—whether they would require assistance after taking their qualification to take post-graduate study?—You would lose a great many good men if you did not. By far the majority of our men have no independent income at all, and cannot afford to do much study after getting their diploma, and if they could be induced by some means or other to go further with their scientific training it would be an excellent thing.

1719. (*Sir Thomas Elliott.*) We have had evidence before us that the profession loses a certain number of good recruits by the fact that parents of possible candidates live so far away from the veterinary colleges that they cannot afford the cost of the maintenance and education of their sons at the colleges. Do you think there is any foundation for that feeling?—I am quite sure of it.

1720. Would you say that that would, to some extent, be remedied by the provision of scholarships at colleges?—Certainly.

1721. (*Chairman.*) Do you think it more desirable to increase the number of colleges, or that scholarships should be provided to enable the students to attend the existing colleges?—I do not know whether you would be content with a certificate, or whether you would require another degree for this higher training. If you had a degree, I would suggest that the post-graduate education might be given at any university, or at any school capable of doing so, and let the Royal College of Veterinary Surgeons give the diploma, after an examination.

1722. The Royal College give the qualification?—The qualification.

1723. And the other work might be done elsewhere?—Yes.

1724. You are acquainted, no doubt, with the diploma in public health that is given by several of the universities?—I do not know much about it.

1725. It is given to men going in for the public health service who have already got their qualifications?—Yes.

1726. And given by various universities?—Yes, that is exactly the thing that is wanted.

1727. That is the kind of analogy you would refer to?—Yes.

1728. (*Sir Thomas Elliott.*) My question was not so much directed to the post-diploma training as to the professional training itself. It was suggested to us that, in order to reduce the inequalities arising from the different localities in which the students live, it would be desirable to increase the number of colleges at which professional training should be given beyond the five, but an alternative suggestion to that was that scholarships should be provided at the existing colleges in order to rectify those disadvantages, and to secure that promising candidates should be able to enter the profession notwithstanding the financial circumstances of their parents. Would you prefer that scholarships should be provided at the existing colleges, or would you prefer that there should be some increase in the number of teaching colleges ?—No, I should certainly not increase them. We have five now when we really only have room for three, and if you could extinguish two of them instead of increasing the number we should be very pleased.

1729. Would you be surprised to hear that that suggestion was made by the head of one of the teaching colleges ?—I should, rather.

1730. (*Chairman.*) You are perfectly satisfied that the number, to say the very least, is adequate ?—It is adequate, certainly.

1731. As regards the training of the veterinary practitioner, you think that the present arrangements, and the organisation of the Examining Board of the Royal College of Veterinary Surgeons are satisfactory ? —I think so.

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APPENDIX I.

STATEMENTS HANDED IN BY WITNESSES.

1. MEMORANDUM ON THE RECRUITMENT OF THE INDIAN CIVIL VETERINARY DEPARTMENT.

(*Mr. Francis C. Drake.*)

Up to the year 1900 the Indian Civil Veterinary Department was filled by officers of the Army Veterinary Department. Owing to difficulties that arose with the War Office as to the engagement of such officers, it was then decided to recruit the Civil Department separately in this country. The terms offered were settled after consultation with veterinary authorities in this country, including Professors Macfadyean and Williams, and were intended to be rather in excess of the terms in force in the Army Veterinary Department, in order to counterbalance the advantages of military rank, &c. The pay starts at Rs. 500 a month (400*l.* a year), and goes steadily up to Rs. 1,200 a month (960*l.* a year). The Imperial Bacteriologist has an allowance of Rs. 200 a month, and there are also certain small allowances, and house rent in certain cases. The attractions of the Department have been to a certain extent impaired by the abolition of the appointment of Inspector-General (on Rs. 1,800).

Number of Appointments.—The present strength of the Department consists of 32 veterinary posts and one special post of Physiological Chemist. The holder of the latter post is not a veterinary surgeon. The number of vacancies filled by appointment of veterinary surgeons have been as follows:—1902, four; 1903, none; 1904, two; 1905, four; 1906, six*; 1907, five; 1908, one; 1909, none; 1910, one; 1911, one; 1912, three. Apart from possible increases in the cadre of the Department it seems probable that the number of vacancies in the next few years will be small; according to present expectations there will be one only in 1913 and one in 1914. Veterinary instruction is advancing rapidly in India, but the prospect of finding men locally to fill the superior posts need not be considered at present. The Regulations now stipulate that candidates must possess a diploma from the Royal College of Veterinary Surgeons.

Qualifications required.—A copy of the regulations for recruitment and of the application form is annexed. It will be seen that special stress is laid on a knowledge of bacteriology and a capacity for carrying out original research. For this purpose endeavour is made to obtain men who have either taken the post-graduate course at the Royal Veterinary College, or who have had laboratory experience as demonstrators or assistant lecturers; if such men are not available the candidate selected is usually required to take the post-graduate course as a condition of appointment. The post-graduate course, with the recommendation of the principal of the college at which the candidate has been studying, constitute the test of professional qualification. The selection is made by the India Office with the advice of Lieutenant-Colonel Queripel, formerly the head of the Indian Civil Veterinary Department.† Of the candidates selected in the last five years all but three had already undergone a post-graduate course at the Royal Veterinary College, one had taken a laboratory class in bateriology at Aberdeen, and the remaining two were required to take the post-graduate course. It has not been found possible to insist on a higher standard of qualification and bacteriological experience than that above indicated;

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* *Note.*—In 1906 two additional candidates were selected for appointments, but withdrew.

† *See* Appendix II. 1.

men with a special training in bacteriology are hard to find, and the two officers appointed to the Department who may be said to have had exceptional qualifications in this respect, namely, Mr. Stockman and Mr. Montgomery (appointed as specialist in camel diseases), have resigned from the Department to take up posts elsewhere.

Method of obtaining Candidates. — The methods employed for obtaining candidates have been—

To advertise in advance the number of vacancies expected to occur in the next one or two years;
To advertise for candidates when it is proposed to fill a vacancy (this, however, has occasionally been omitted, as it is not found to produce any valuable applications);
To send a circular notice to the heads of veterinary colleges when it is proposed to fill a vacancy, asking them for names of likely candidates; and
To keep in touch, through Colonel Queripel, with the veterinary colleges.

Number of Candidates.—A list of candidates is kept at the India Office. It may be of interest to compare the available candidates for three posts offered in the autumn of 1907 with the list for the similar number of vacancies in 1911. In 1907 the number of names on the books, omitting obviously unsuitable men, was 17. Of these, six were considered good enough to be selected for interview. In 1912 there were only six available men on the books, and one more applied after a circular reference had been made to the veterinary colleges. Of these seven, five were invited to come up for interview, but one did not attend. The reports from the veterinary colleges were to the effect that there was a great dearth of qualified men.

As to the general causes for the shortage of candidates, this office is not qualified to express an opinion. The causes directly connected with the Indian Civil Veterinary Department may be—

1. The small number of vacancies.
2. The abolition of the Inspector-Generalship.
3. Possible insufficiency of the means of making vacancies known among suitable men.

Any scheme which would meet the first and third of these would be welcome. A proposal has been made by the Colonial Office in the year 1907 for a pass examination to be held by the Civil Service Commissioners with a view of entering the candidates on a combined list which would be available for any vacancies that might arise. The Secretary of State for India took the view that though such an examination would be welcome as a test of proficiency he was not prepared to restrict his field of choice to the men on such a list, as many veterinary surgeons—including perhaps the best—might not have time or inclination to qualify for the list without having a specific appointment in view.

2. STATEMENT OF THE NUMBER OF STUDENTS WHO HAVE ATTENDED THE ROYAL VETERINARY COLLEGE OF IRELAND.

(*Professor A. E. Mettam, B.Sc., M.R.C.V.S.*)

Session.	Students on the Roll.	Students who Graduated.
1907–8	137	17
1908–9	138	19
1909–10	127	19
1910–11	148	20
1911–12	145	27

Total number of graduates since opening, 141.

(1904 was the earliest date at which students entering in 1900 could graduate.)

3. LIST OF VETERINARY APPOINTMENTS IN THE CROWN COLONIES AND PROTECTORATES.

(*Mr. H. F. Batterbee.*)

Colony.	Appointment.	Salary.
East African Protectorate.	1 Chief Veterinary Officer.	550*l.*—25*l.*—650*l.*
	1 Assistant Veterinary Officer.	500*l.*
	7 Veterinary Officers.	400*l.*
	1 Veterinary Pathologist.	500*l.*
	1 Assistant Pathologist.	400*l.*
	2 Veterinary Officers (temporary).	400*l.*
Uganda - -	1 Chief Veterinary Officer.	400*l.*—25*l.*—500*l.*
	1 Veterinary Officer.	400*l.*
	1 Veterinary Officer (temporary).	400*l.*
Nyasaland - -	1 Veterinary Pathologist.	450*l.*—25*l.*—500*l.*
Gold Coast - -	1 Veterinary Officer.	400*l.*
Sierra Leone - Gambia - -	1 Veterinary Officer. (Post now vacant: Somewhat doubtful whether vacancy will be filled.)	450*l.*—20*l.*—500*l.*
Cyprus - -	1 Veterinary Surgeon.	250*l.*
Malta - - -	1 Veterinary Surgeon.	230*l.* + 120*l.* as Superintendent of Slaughter-houses.
Ceylon - -	1 Veterinary Surgeon.	375*l.*—525*l.*
Federated Malay States.	5 Veterinary Surgeons.	360*l.* — 15*l.* — 540*l.*, with 75*l.* duty allowance.
Straits - -	3 Veterinary Surgeons.	360*l.* — 15*l.* — 540*l.*, with 75*l.* duty allowance.
Hong Kong -	1 Veterinary Surgeon.	480*l.*—600*l.*
Trinidad - -	1 Veterinary Surgeon.	300*l.* + 100*l.* as Superintendent of Quarantine Station.
Falkland Islands -	1 Chief Inspector of Stock.	350*l.* + 50*l.* horse allowance.
British Guiana -	1 Veterinary Surgeon.	——
St. Vincent - -	1 Veterinary Surgeon.	200*l.* + 50*l.* horse allowance.
Jamaica - -	1 Veterinary Surgeon.	350*l.*
Barbados - -	1 Inspector of Animals.	150*l.* + 118*l.* as Veterinary Surgeon to the Police + 100*l.* as Inspector of Butcher's Meat.
Imperial Department of Agriculture for West Indies.	1 Veterinary Officer.	382*l.* 10*s.*
Fiji - - -	1 Veterinary Surgeon.	500*l.*

4. NUMBER, PREVIOUS EDUCATION, AND AFTER-CAREERS OF STUDENTS WHO HAVE ATTENDED THE ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

(*Professor O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.*)

Number of Students.—The number of students attending classes during the past 10 sessions, and the number of diplomas obtained is shown in the following table:—

Session.	No. of Students attending Classes.	No. of Students who obtained the Diploma of M.R.C.V.S.
1902–3	99	7
1903–4	114	11
1904–5	127	25
1905–6	133	23
1906–7	120	21
1907–8	99	17
1908–9	92	17
1909–10	85	20
1910–11	83	19
1911–12	75	9

Type of Students.—A large proportion are sons or relatives of veterinary surgeons, farmers, and others with landed interests. The rest come from very diverse sources.

Particulars of previous education are not available before 1904. Since then records have been kept and are hereunder tabulated:—

Schools.	No. of Students.
English Secondary (including 1 from Harrow and 1 from Cheltenham)	42
Scottish Secondary	38
Irish Secondary	22
Scottish Universities	2
Trinity College, Dublin	1
Loretto School and Heidelburg University	1
Colonial	5

These same students passed the following Preliminary Examinations in General Knowledge before commencing the professional curriculum:—

Examination.	No. of Students.
Educational Institute of Scotland	67
College of Preceptors	4
Royal University of Ireland	7
Scottish Universities Medical Preliminary	3
Cambridge Local	6
Scotch Education Department, Leaving Certificates	7
Royal Colleges of Physicians and Surgeons, Ireland	5
Trinity College, Dublin, Entrance	1
Dublin University, Matriculation	1
Oxford Local	2
London University, Matriculation	1
Cape of Good Hope University, Matriculation	3
University of New Zealand, Medical	1
National University of Ireland	1
Intermediate Education Board, Ireland	1
M.A., University of Aberdeen	1

After-Careers.—Pages 113 to 117 inclusive of the College Calendar contain a list of commissions and appointments held by graduates. The chief appointments may be summarised as follows:—

Board of Agriculture and Fisheries, and Department of Agriculture, Ireland	24	(including Chief Veterinary Officer, Board of Agriculture and Fisheries).
Army Veterinary Corps (Regular) including retired officers	36	
Indian Civil Veterinary Department	8	(including Inspector-General).
Colonial Government appointments	33	(including Principal Veterinary Officer, Pretoria; Chief Veterinary Officer, Rhodesia; Chief Veterinary Officer, British East Africa).
Principal, Royal Veterinary College, London.		
Principal, Royal Veterinary College, Dublin.		
Principal, Veterinary College, Glasgow.		
Principal, Veterinary School, University of Sydney.		
Principal, Agricultural College, Roseworthy, South Australia.		
Teachers in Veterinary and Agricultural College	9	

5. STATEMENT OF THE NUMBER OF CANDIDATES EXAMINED FOR THE DIPLOMA OF MEMBERSHIP OF THE ROYAL COLLEGE OF VETERINARY SURGEONS IN EACH YEAR FROM 1890 TO 1911.

(*Mr. F. W. Garnett, M.R.C.V.S.*)

Year.	No. of Candidates examined in Final Year.	No. of Graduates.
1890	281	125
1891	302	122
1892	297	136
1893	274	142
1894	308	152
1895	221	152
1896	198	118
1897	153	101
1898	148	103
1899	109	92
1900	103	78
1901	114	87
1902	103	80
1903	83	55
1904	120	84
1905	124	80
1906	122	92
1907	114	80
1908	133	86
1909	137	92
1910	140	93
1911	112	72

6. NUMBER OF STUDENTS WHO HAVE ATTENDED THE GLASGOW VETERINARY COLLEGE.

(*Professor James McCall, F.R.C.V.S.*)

Session.	Number of Students.	Numbers Examined.	Numbers Passed.	Numbers who obtained Diploma.	Honours.
1907–8	66	53	35	9	4
1908–9	47	46	30	10	3
1909–10	44	44	30	8	3
1910–11	40	32	26	8	5
1911–12	35	33	24	7	1

The number of students in the session 1888–9 was 121; 1894–5, 141; and 1905–6, 76.

7. NUMBER, TYPE, AND AFTER-CAREERS OF STUDENTS WHO HAVE ATTENDED THE COURSE FOR THE DIPLOMA OF VETERINARY STATE MEDICINE IN THE UNIVERSITY OF MANCHESTER.

(Professor Sheridan Delépine, M.B., C.M., M.Sc.)

Applications for admission to Veterinary Post-Graduate Course.—During the past eight years enquiries have been received from 66 intending students, to which must be added six more who wished to attend only small parts of the course.

Of the 66 applicants, 7 held the F.R.C.V.S.; 56 held the M.R.C.V.S.; 3 were students. The last three were informed that they could not be admitted.

Of the qualified men, one was a major and the other a captain in the Army Veterinary Corps, one was a lieutenant in the A.V.C. Special Reserve; several were veterinary inspectors under the Board of Agriculture, or under county or municipal authorities.

Several applicants withdrew after being informed that the diploma carried with it no special privilege. Others were advised by the Director of the Laboratory not to incur the expense of the course because, after a short conversation with them, he felt certain that they would be unable to benefit from the course.

Others applied for exemption from certain parts of the course on account of previous work, but except in the case of men who had held for more than one year responsible appointments, no exemption from the practical work under a veterinary inspector was granted, and with regard to laboratory work the only course recognised outside the University was the Post-Graduate Course given at the Royal Veterinary College, London, and this was accepted as equivalent to three months of the Manchester Laboratory Course which extends over six months. (The two candidates who applied for this exemption did, nevertheless, complete their six months' course in Manchester.)

Several of the applicants found the duration of the course and consequent expenditure prohibitive.

The places of residence of the applicants were as follows :—

Lancashire, 23 - - - - - - - Yorkshire, 8 - - - - - - - Cheshire, 6 - - - - - - -	37
London and suburbs - - - - - -	7
Staffordshire - - - - - - -	2
Nottinghamshire - - - - - - -	2
Seven other counties (one each) - - -	7
England - - - - - - -	55
Scotland - - - - - - -	9
Wales - - - - - - - -	2
	66

Students who have attended the D.V.S.M. Course.—Out of the applicants, 36 have entered for the whole or part of the course, but only 27 men have taken the full D.V.S.M. Course. Of these, 20, *i.e.*, 74 per cent., have obtained the diploma, 15 were successful the first time they presented themselves, four were successful after being rejected once, one after being rejected twice.

Of the 20 successful candidates, 14 (as far as is known) are at the present time holding some public appointment, and six are in ordinary practice, but among these six there are four at least who could render distinct services as public servants.

The residence of the 27 students who took the full D.V.S.M. Course was at the time they entered :—

Lancashire (including three from Manchester and suburbs) - - - - - -	12
Yorkshire - - - - - - - -	2
Cheshire - - - - - - - -	1
London - - - - - - - -	2
Norfolk, Melton Mowbray, Nottingham, Birmingham (one each) - - - -	4
Scotland (including two from Glasgow, one from Edinburgh) - - - - -	6
	27

The posts which have been or are held by 14 of the successful candidates are as follows :—

Veterinary Inspector, Public Health Department, Manchester.

Inspector of Dairy Herds, Lancashire C.C.

Veterinary Officer of Health, Birmingham.

Veterinary Surgeon, New Zealand Government.

Veterinary Inspector, Blackburn.

Assistant Veterinary Officer, South Eastern Agricultural College, Wye, Kent.

Examiner in Veterinary Hygiene, Edinburgh University.

Chief Veterinary Inspector, Sheffield.

Lecturer on Veterinary Dietetics and Meat Inspection, Liverpool University.

Veterinary and Meat Inspector, Halifax.

Assistant Meat Inspector, Manchester.

Late Chief Veterinary Inspector, Blackburn.

Late Assistant Veterinary Inspector, Sheffield (on probation, Veterinary Staff of the Board of Agriculture).

Veterinary Inspector, Salford.

APPENDIX II.

MEMORANDA RECEIVED IN LIEU OF VERBAL EVIDENCE.

1. MEMORANDUM ON THE RECRUITMENT OF INDIAN CIVIL VETERINARY DEPARTMENT.

(Lieutenant-Colonel A. E. Queripel, late Inspector-General, I.C.V.D.)

Being unavoidably prevented from giving evidence before the Committee appointed by the Board of Agriculture to inquire into the requirements of the public services at home, in India, and in the Colonies, with regard to the employment of officers possessing veterinary qualifications, I have prepared the following statement.

The points on which information appear to be desired are—

1. The steps taken to secure candidates for the Indian Civil Veterinary Department.

I have been connected with the selection of candidates for that Department since 1901, when civilians were first enlisted, prior to that the ranks of the Civil Department were filled by volunteers from the Army Veterinary Corps, and under this system some excellent men were obtained.

The steps taken to obtain suitable civilian candidates are—

(*a*) By advertisement, when vacancies occur, in the various veterinary journals, this step is taken by the India Office.

(*b*) By my addressing the principals of all the colleges asking if they can recommend any men, and on this point I lay great reliance, as they have known the candidates as pupils for nearly five years, and are able to judge of their abilities, of their general conduct, and of their social qualifications. I would like to add that I have always received most cordial assistance, especially from Sir John McFadyean to whom the Department owes most of its good men.

In consultation with the Revenue Secretary, India Office, all likely candidates are invited to attend at the

India Office where they are interviewed by me. I have always first considered whether they are socially fit to work with the civil officers in charge of districts and divisions in India, as from experience I have always found that much better work was done in Provinces where the veterinary officers were on friendly terms with members of the Civil Service, with whom, owing to good social qualifications, they are able to fraternise.

Having assured myself on this point I then inquire into their professional abilities, first, as general practitioners, and secondly as to their bacteriological knowledge, and their ability to carry out original research work; but it will be readily understood that but few have, at the age required, had any opportunity of obtaining experience in the latter.

Having combined the two above-mentioned qualifications I then place the candidates in the order in which they should stand. They are then brought by me before the Revenue Secretary for interview, who subsequently submits the lists with observations to the Secretary of State in Council.

I might add that I have on one or two occasions waived the social qualifications in favour of men whose professional abilities were very marked and who possessed such sterling qualities that I felt they would make good officers. I have not been able to ascertain how these men have turned out, and I think that periodical reports should be sent to the India Office showing how men selected by them are doing.

2. The qualifications required.

This is really answered in reply to No. 1.

Of course all candidates must be members of the Royal College of Veterinary Surgeons.

They must have a thorough knowledge of their profession as general practitioners, and preference is given to those who have made bacteriology a special study.

They must have passed a post-graduate course.

3. The supply of candidates having such qualifications.

Ten years ago no difficulty was experienced in obtaining suitable candidates. In fact one year when eight men were appointed, all men selected were decidedly good. This has entirely changed. Now when one or two candidates are required (this being the present average), it is with difficulty that any extra good men are obtained. Hitherto I have been able to secure the number required, but those placed below these have not been of the class that I would have desired, and in the event of any of those selected failing to pass the Medical Board, a man with inferior qualifications steps in.

4. Suggestions for improving the present system.

This is a most difficult question, as the demand is so erratic that no youngster would dream of studying for the diploma with a view of obtaining an appointment in the Indian Civil Veterinary Department, the prospect is too uncertain. As I have before said we have been called upon to find eight men in one year whilst again there may not be a single vacancy for nearly two years. In this way I have found that likely applicants have during this time accepted service either in the Army or in the Colonies.

The whole question rests on supply and demand, and it can be confidently stated that the supply of good men is inadequate to meet the requirements of the Army, Home, Indian, and Colonial services. The number of students entering the Colleges is yearly decreasing, but the principals, who no doubt will give evidence, will be able to give more correct information on this point than I can.

This leads me to suggest that every endeavour should be made to increase the number of students. I have long held that the advantages offered by the profession to young men of ability have not been made sufficiently known; in other words, that the colleges are not sufficiently advertised. I would suggest that, under the auspices of the Board of Agriculture, advertisements should be inserted in all the leading papers in the United Kingdom showing the appointments likely to be made at Home, in India, and in the Colonies. The colleges, owing to the restricted funds at their disposal, cannot do this; it should be done by the governments who are interested in the supply of candidates.

And, lastly, I would mention one point which is likely to deter good candidates from applying for service in India. I do it with reluctance, as I may be accused of criticising the action of the Government of India, but it has been so forcibly brought to my notice that I feel compelled to do so. It is the abolition of the appointment of Inspector-General, Civil Veterinary Department. Members of any scientific profession object to be under lay control. We see this in the action of the medical profession in connection with the Insurance Act, and so it is with the veterinary profession. I have had many representations made to me on this subject, and it has been pointed out that now that there is no professional head to the Department in India, professional ability cannot be recognised, and grievances cannot be brought to the notice of the Government of India as they were when an officer was in direct communication with them. As the matter stands the officers are more Provincial than Imperial, and the location of officers to appointments which meet their special abilities cannot be carried out.

But, again, the abolition is a serious pecuniary loss. As the matter stands no officer can now expect to draw more than Rs. 1,200 a month, irrespective of whatever length of service he may have, and this is not sufficient to attract the best men; but, in addition, officers have lost the chance of obtaining the extra Rs. 1,000 per annum pension which was granted to officers who had done three years' approved service in the appointment of Inspector-General.

The above must be looked upon as only rough notes, as they have had to be prepared within a few hours to ensure their reaching Sir Thomas Holderness in time.

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2. MEMORANDUM ON THE PUBLIC VETERINARY SERVICES IN THE UNION OF SOUTH AFRICA.

(*Dr. Arnold Theiler, C.M.G., Director of Veterinary Research in the Union of South Africa.*)

I.

The public veterinary institutions of the Union of South Africa form part of the Department of Agriculture and the Chief Officers are directly responsible to the Secretary of Agriculture. The first Minister of Agriculture, General Botha, has started the practice of receiving the chiefs of divisions personally to frame the policy of the division; to discuss important events and to receive reports and information about work and progress.

The veterinary service is divided into two divisions:—

(*a*) Research.
(*b*) Contagious diseases.

These divisions are independent of each other, each having its own chief.

(*a*) The Director of Veterinary Research for the Union of South Africa stands at the head of the division of research, and this position is occupied by the writer.

The personnel of the division is divided into two sub-divisions, a technical and administrative or commercial one.

The technical staff consists again of two branches, a research and a routine branch. The former, under the special care of the Director, is occupied with preparing the general policy, and superintending and carrying out of original research work; the latter with the general routine work; superintending the administrative sub-division, diagnosis of specimens, preparation of vaccines and serums, and giving advice to the farming population.

The work of the division is carried out in three permanent laboratories, of which the principal one is situated in Onderste Poort, near Pretoria. A description of it is given in a commemorative pamphlet which I have the honour to forward with this memorandum. Since the occupation of this laboratory in 1908 new buildings have been added and further ones are under construction to meet the requirements of the Union.

At this place all the routine work is concentrated.

The two remaining laboratories are in Grahamstown and in Pieter-Maritzburg. In addition to these stationary laboratories we have field or temporary laboratories, necessary for the investigation of diseases which cannot yet be communicated or produced artificially and which for this reason must be studied in the localities where they occur.

There are, at present four such laboratories, viz., one in the Western Transvaal, one in Bechuanaland, one in the Free State and one in the Midlands of the Cape Province. The whole or portions of farms are utilised for this purpose. These farms either belong to the Government, or are lent by farmers free of charge, or are rented by the Union.

A third form of laboratory is the "flying or travelling laboratory," for the purpose of immediate investigation on the place of an outbreak of disease. The whole outfit can be carried by a man and is arranged to fit in a Cape cart or motor-car.

The technical staff provided for in the estimates of the division consists of 13 qualified men, including the director. There should be at least one qualified man (to take charge) for each laboratory, leaving enough men to carry on the work at headquarters. Unfortunately, owing to lack of suitable men, it has not yet been possible to carry out this policy and experienced laymen have had to be placed in charge of some of the field laboratories. Fortunately these are situated so that in case of emergency they can easily be reached from headquarters. Every qualified assistant has a white servant at his disposal, and there are a certain number of servants belonging to the general staff. The number of servants varies somewhat according to the work undertaken.

The administrative work is in charge of a layman. He has to supply the experimental animals, their food and attendance; he superintends the farm, where part of the food supply is grown; he dispatches the vaccines and serums, collects the revenues and attends to the discipline of the general and native staff.

Each sub-division has its own clerical staff, viz., the technical clerical staff and the administrative one.

The staff of the laboratories consists of 45–50 white men, some permanent, some temporary, and about 120–150 natives. The estimates voted for last year amounted to 45,000*l*. The animals in experiments and under supervision number on the average 1,500.

The laboratories are supplying serum for the inoculation of horses and mules against horse-sickness; vaccine for the inoculation for sheep against bluetongue, and of cattle against anthrax, redwater and gallsickness; antivenous serum, mallein and tuberculin; smallpox and antirabic vaccine. They examine pathological specimens and give advice to farmers on all veterinary matters. Serum and vaccines are issued at cost price, examination and advice is free of charge. Two annual reports are published. One, containing all the research work, is intended for the scientific world; the other one, giving an account of the work in general and the routine in particular, is intended for Parliament.

(*b*) *The Division of Contagious Diseases.*

The chief of this division is the principal veterinary officer of the Union of South Africa, Mr. C. E. Gray, M.R.C.V.S., being the present holder of the post. He is assisted by an Assistant Principal Veterinary Surgeon for the Union and five Senior Veterinary officers, one each for the provinces of Transvaal, Natal and Freestate and two for the Cape Province. They again are assisted by district veterinary officers, of whom Natal has about 12, Transvaal about 20, the Freestate 6 and the Cape about 20. I am, however, not in a position to vouch for the correctness of the above numbers; perhaps the High Commissioner for the Union of South Africa is able to give more accurate figures. It must be stated here, that, as far as the Cape Province is concerned, the staff is wholly inadequate and there is at present a shortage of men. The policy of Mr. Gray is to have a number of men unattached, in order to be able to send them, in case of an outbreak of disease, immediately into the threatened district. This has been done in connection with an outbreak of East Coast Fever in the native territories of Griqualand East where at present nearly the whole veterinary staff of the Cape Province is concentrated.

The work of the Government Veterinary Officers is primarily to carry out the provisions of the Contagious Diseases Act, and secondly, if time permits, to assist the farmers. The latter is generally done in the form of advice, and the performance of such operations as the farmers cannot do themselves.

The Government Veterinary Officers are also, to a certain extent, officers of the Division of Veterinary Research. They have to carry out the inoculation of animals with vaccines and sermus supplied by the laboratories, when it cannot be done by the farmer, or when the inoculation is carried out under an insurance system. They receive, however, instructions for inoculation from their own chief, and only as far as technical matters are concerned are they connected with the Division of Veterinary Research. This system has so far worked well. The laboratories in the various provinces assist the Government Veterinary Surgeon in the diagnosis of diseases. The one dangerous disease of cattle in South Africa is still East Coast Fever. A sure diagnosis is very important, and is made by the microscope. Every man can be of assistance, and arrangements are made so that, for instance, in the Transvaal, the necessary glass slides can be obtained at all police stations of the infected district and all constables are instructed to make blood smears. This has proved of immense value in the Transvaal.

II.

The present supply of men possessing veterinary qualifications for employment on research and administrative work, is, as far as I can judge, inadequate. Concerning research work, it is my experience that but few men take up this side, because there is only a limited prospect for employment, and because, in my opinion, the Government value scientific work not so much as they do the administrative work of the general Civil Service. Accordingly, the scientific side of the work is mostly chosen by men who are enthusiasts and who are working for love of the work itself. Unfortunately such men are but few, and, if kept on low salaries, their enthusiasm suffers in the course of time. There is, accordingly, a danger that men may be taken into research work who, for want of better employment in more remunerative branches, are attracted to this sort of work. Although they have the necessary technical qualifications, they are lacking in scientific spirit and enterprise. The same applies to veterinary officers of the administrative work in connection with the Animal Diseases Act. As far as the Union of South Africa is concerned, in my opinion only the best men are good enough to fill those positions. When I left South Africa Mr. Gray informed me that his staff was short of five men, and that he could not obtain them in Great Britain. He has engaged a man from Holland, and is looking out in Canada for the rest. There are also some vacancies in my division, which, up to now, I have been unable to fill, and I am looking now on the continent for suitable men. Experience has shown, as far as the Transvaal was concerned, that when a good salary was offered, good men were forthcoming. Wherever lower salaries were offered, fewer men were applying, and amongst them an unusual percentage proved to be failures. This is by no means astonishing, as a good man finds more remuneration in a private practice than in a badly paid Government service.

III.

As far as the Union is concerned, South Africans are now encouraged to take up the study of veterinary medicine, both for the purpose of administrative and research work. For this purpose bursaries are offered to promising young men to study veterinary science in London, and on the Continent. This is, at present, decidedly the best system, and, if carried out judiciously, should overcome the difficulty to some extent. There is, however, on the part of South African parents, who would like to see their sons taking up veterinary science, an objection to send them abroad. Already, at several farmers' congresses, the wish has been expressed for the establishment of a veterinary college in South Africa. Such an institution is as yet premature, but it will have to come in the future. Meanwhile, the best way to meet the contingency are the bursaries. As far as the men employed in the administrative work are concerned, the training which they obtain in any of the veterinary colleges of Great Britain and Ireland has proved adequate for the requirements of the Union. It is true that they generally lack a thorough knowledge of colonial diseases, and are not skilled enough in microscopic diagnosis. They all have to undergo a special course in the laboratory at Onderste Poort before they take up their duties. We instruct them in the various methods of inoculation, and none are sent out before we are certain that they are efficient in microscopic work. As there are only a small number of men to be instructed at the same time, special attention can be give to them individually. It may be of interest to add that at the laboratory at Onderste Poort, Government veterinary surgeons of the Portuguese and German Colonies and of the Belgian Congo have taken their course of instruction in South African diseases, and that the laboratory is open to everybody for this purpose. I have not found that these foreign veterinary surgeons excel our British colleagues in any respect, and I hold that the British veterinary surgeon is generally more practical and resourceful. If a suggestion could be made as to the improvement of their special training, it would be to the effect that at the various colleges a chair be provided for colonial veterinary service; or, perhaps better still, that for the purpose of State veterinary medicine, both for home and colonial employment, a special diploma be asked, the qualification to be obtained in special courses attached to some veterinary colleges, laboratories, or other institutions suitable for the purpose. This would, however, only be of use if the salaries offered by the various States were attractive enough.

As far as research work is concerned, I regret to state that the present training is totally inadequate. I have been fortunate enough to obtain from the London and Dublin colleges some excellent men. These, however, are exceptions. They were men who were able to extend their knowledge by their own training. It is easier to obtain men for research work from Germany than from Great Britain, and the reason for this is very likely the institution of the Degree of Doctor of Veterinary Medicine, a degree which can be obtained at present in any of the veterinary colleges of Germany, Austria, and Switzerland. In order to obtain this distinction, some research work must be done, usually under the care and supervision of the professors. This work requires about one year's special attention and qualifies the man for research work. It has been my experience that students who qualified in Great Britain and went afterwards to the Institut Pasteur, Paris, proved successful at research work. To send promising men abroad, supported by special bursaries, might relieve the present situation. A man who wants to take up research work, should have a thorough general education in all branches of natural science, added to the special training in a college and a laboratory. He would therefore have to give more time to his general education than would men for administrative work.

IV.

As to the best course of training, I regret to say that I am not conversant enough with the educational programme of the United Kingdom. I noticed, however, that from South Africa pupils are accepted into the Veterinary College in London who have passed the matriculation examination of the Cape of Good Hope University. These pupils are usually about 17 years of age, and this is, in my opinion, too early to go to a veterinary college. On the continent—in Germany, Austria and Switzerland—students cannot enter a veterinary college (all of which rank as High Schools *i.e.* form part of a University) before the age of 19–20 years, and as the course requires four years they enter into practice at a mature age. This would, perhaps, be too much for a Colonial; but, more than the Cape matriculation is required for men who intend to enter the Government Veterinary Service. The intermediate examination of the Cape University requires a year's study after the matriculation, and would perhaps, be sufficient for men who want to enter the administrative division. For the purpose of research work, the elementary training should include the course for the B.A. or the B.Sc. before entering the college, and at the conclusion the opportunity should be given to qualify as Doctor of Veterinary Medicine, which would require another year's training. After that, really promising men should still have an opportunity to visit and spend some time at laboratories in France, Germany, or elsewhere, supported by a scholarship or bursary. For the purpose of successful research work it is essential to know French or German, preferably both.

This seems rather a long time of training, but it is the training I wish I had had, and which I am willing to give to my sons, whatever scientific line they intend to take up. It is understood, however, that students who undergo such a long and expensive training should have a prospect of a remunerative position, and it will be necessary to keep this in mind, should the standard of qualifications be raised.

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3. MEMORANDUM ON THE PUBLIC VETERINARY SERVICE OF NEW ZEALAND.

(*Mr. Alexander Crabb, M.R.C.V.S., Veterinary Officer in London to the New Zealand Government.*)

1. The staff of Veterinary Surgeons engaged in official work in New Zealand numbers, at present, twenty-seven; these are all permanent officials, members of the Department of Agriculture. With two exceptions, they are graduates of the Royal College of Veterinary Surgeons and have mostly been selected in this country. When vacancies occur, appointments are made here by the High Commissioner for New Zealand, the positions being advertised in veterinary and other papers.

2. The majority of the Government Veterinarians in New Zealand are engaged in the work of meat inspection for the greater part of the year, a few at abattoirs where slaughtering takes place for local consumption, and the remainder at meat export works; when the latter are closed, then the veterinary surgeons carry out field work, comprising inspection of stock, tuberculin testing, investigation of diseases, &c. In addition, several of the staff are permanently engaged in field work, carrying out such duties as stock inspection, blackleg inoculation, &c.

I would here say that all work is carried out under the direction of the Chief Veterinarian, Mr. C. J. Reakes, D.V.Sc., M.R.C.V.S., (who bears the title of Director of Livestock and Meat Division), and in no case are the veterinarians responsible to medical officers, local authorities or similar bodies.

3. As before mentioned, when vacancies occur, they are filled by appointments made in this country by the High Commissioner for New Zealand; during the past four years I have assisted in the selection of veterinary surgeons for New Zealand, and I must confess that it has been a difficult matter to find candidates in all ways suitable for the positions, notwithstanding the fact that the applications have been numerous.

While all of those interviewed possessed considerable knowledge of the routine of ordinary veterinary practice, few had any knowledge of administrative work, while their acquaintance with the routine of meat inspection was not sufficient to fit them for immediate responsibility.

4. Arising out of the above, it appears to me advisable that a further course of tuition should be undergone by those veterinary surgeons who contemplate taking up official positions, the everyday work of the latter being so entirely different from that of the veterinary practitioner. It would seem that such tuition should be of a post-graduate nature, as I believe it is allowed that the present course of four years is fully taken up with work necessary for the M.R.C.V.S. diploma.

I am aware, of course, that post-graduate classes are held at several veterinary and other schools, but these do not quite appear to meet the case.

In the case of one institution, no special diploma is granted; in two others, pupils after attending the classes are given special degrees, but my personal experience has been that the holders of these special degrees are not necessarily the best men for public work.

When degrees are granted by more than one authority, there is always the possibility that such authorities may vie with each other in the number of diplomas granted, leaving the merit of the student to take a secondary place.

I am strongly of opinion that post-graduate degrees should only be granted by the Royal College of Veterinary Surgeons, and then only after attending classes and passing an examination specified by that body. Undoubtedly, the one portal system has had a good effect in increasing the efficiency of the veterinary profession generally, and it may be assumed that a similar result would ensue in the case of post-graduate work.

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4. LETTER FROM THE CANADIAN DEPARTMENT OF AGRICULTURE CONTAINING INFORMATION AS TO THE EMPLOYMENT IN CANADA OF OFFICERS POSSESSING VETERINARY QUALIFICATIONS.

(*High Commissioner for Canada.*)

Department of Agriculture,
Ottawa,
28th November 1912.

Sir,

I beg to acknowledge the receipt of your letter of the 13th instant, making certain inquiries on behalf of a Departmental Committee of the Colonial Office as to the employment of officers possessing veterinary qualifications, and to reply thereto, so far as the Department of Agriculture is concerned, as follows :—

(1) At present the number of veterinarians in the employment of the Health of Animals Branch of this Department is 226, 86 being engaged in the control and eradication of contagious diseases of animals in the field, 43 stationed at the various quarantine stations and inspection ports on the coast and along the international boundary, and 97 in the abattoirs throughout the Dominion, which carry on an export trade for the purpose of enforcing the provisions of the "Meat and Canned Foods Act."

(2) A departmental examination is held yearly throughout the Dominion on the following subjects : —Contagious diseases, meat inspection, anatomy, histology and pathology. This is open to graduates of any recognised veterinary college, and those who are successful are placed on the waiting list of the department, from which appointments are made as vacancies occur, preference being given to Canadians.

(3) I have no suggestions to make.

I have, &c.
(Signed) Geo. F. O'Halloran,
Deputy Minister.

The Secretary,
Office of the High Commissioner
for Canada, London.

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